FIG. 1A

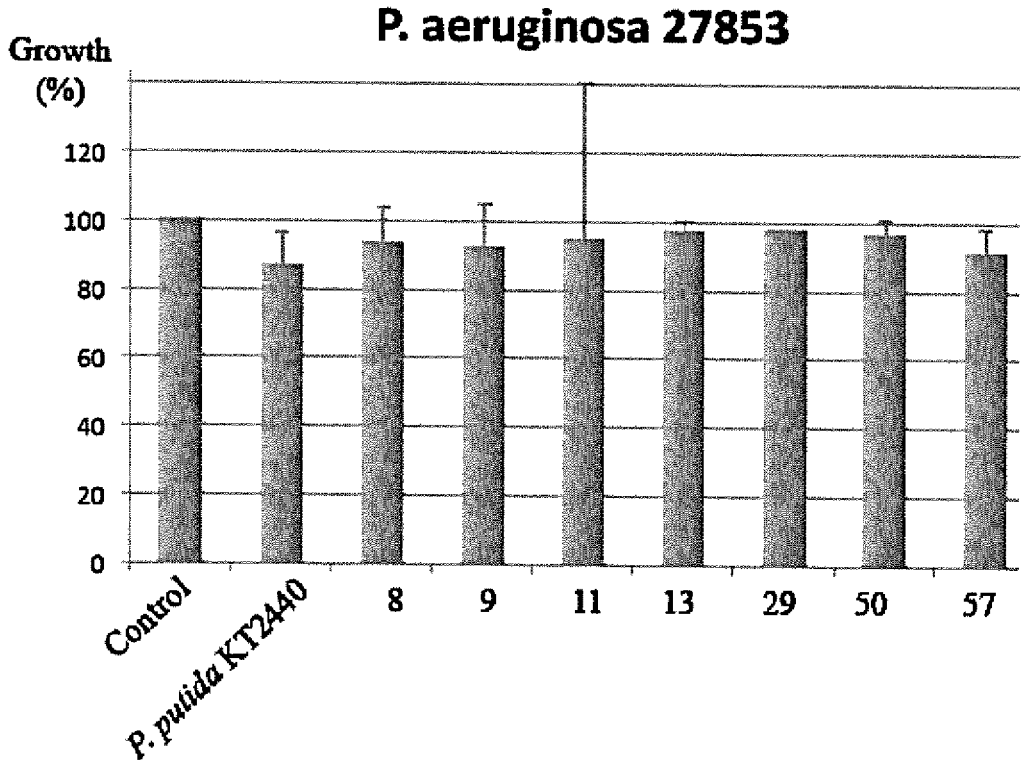

P. aeruginosa 27853
Growth
(%)
120
100
80
60
40
20
0
Control
P. putida KT2440
8
9
11
13
29
50
57

FIG. 1B

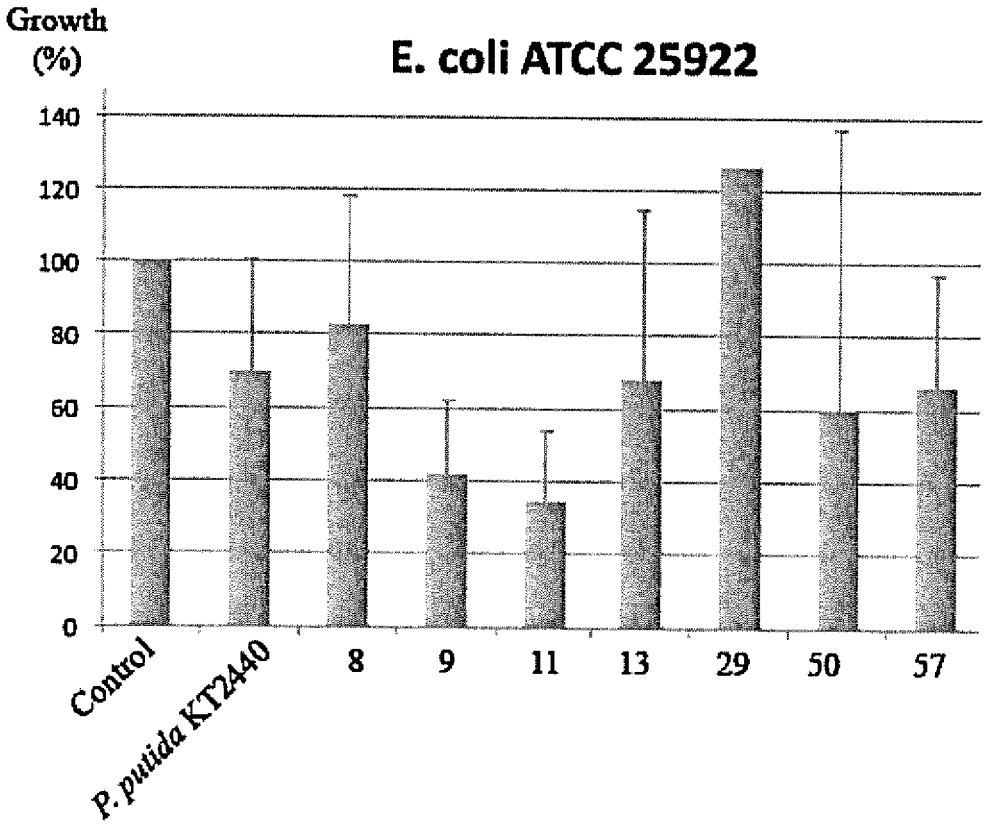

E. coli ATCC 25922
Growth
(%)
140
120
100
80
60
40
20
0
Control
P. putida KT2440
8
9
11
13
29
50
57

FIG. 1C

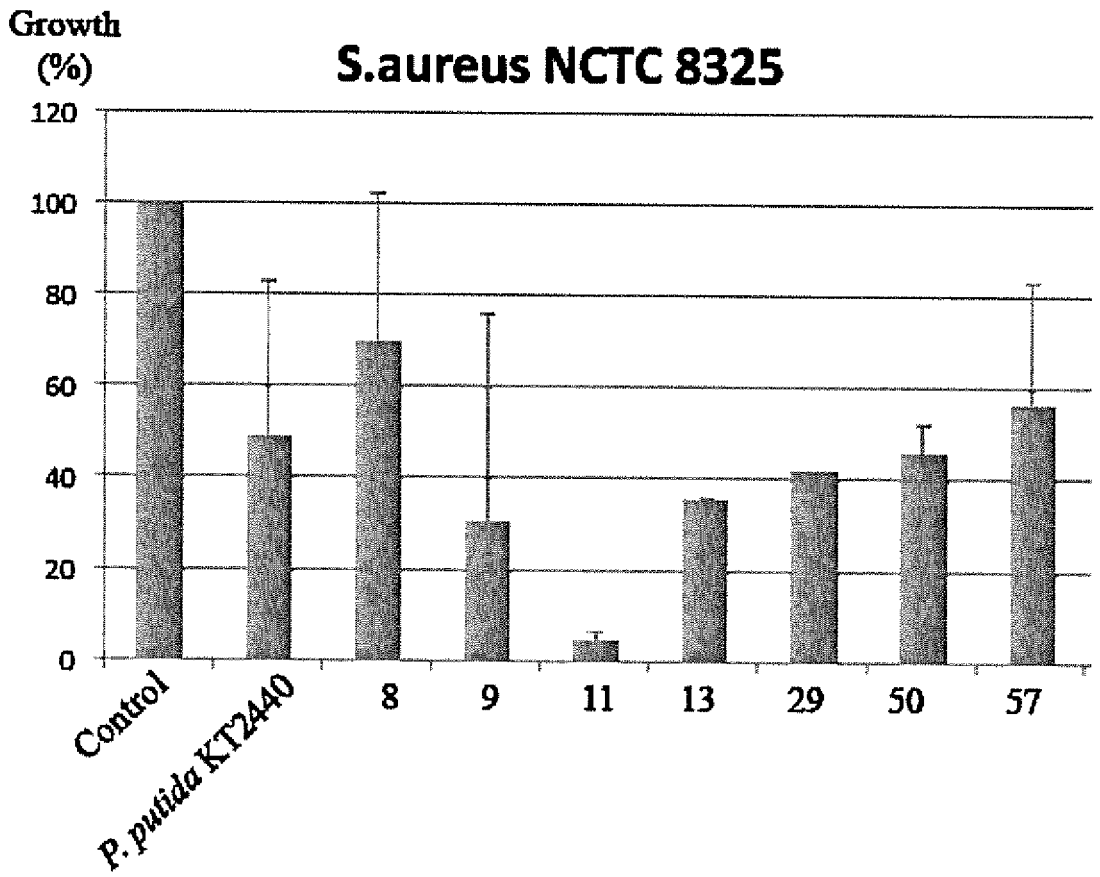

Growth
(%)
S.aureus NCTC 8325
120
100
80
60
40
20
0
Control
P. putida KT2440
8
9
11
13
29
50
57

FIG. 2

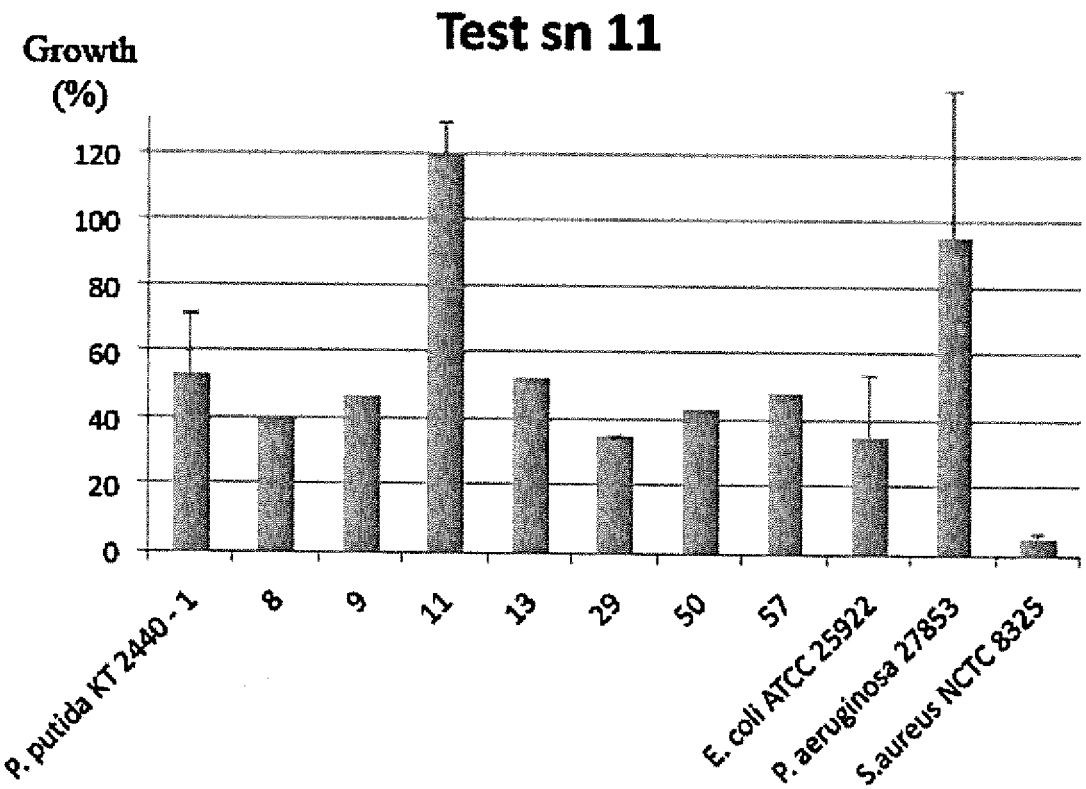

Test sn 11
Growth (%)
120
100
80
60
40
20
0
P. putida KT 2440 - 1
8
9
11
13
29
50
57
E. coli ATCC 25922
P. aeruginosa 27853
S.aureus NCTC 8325

FIG. 3A

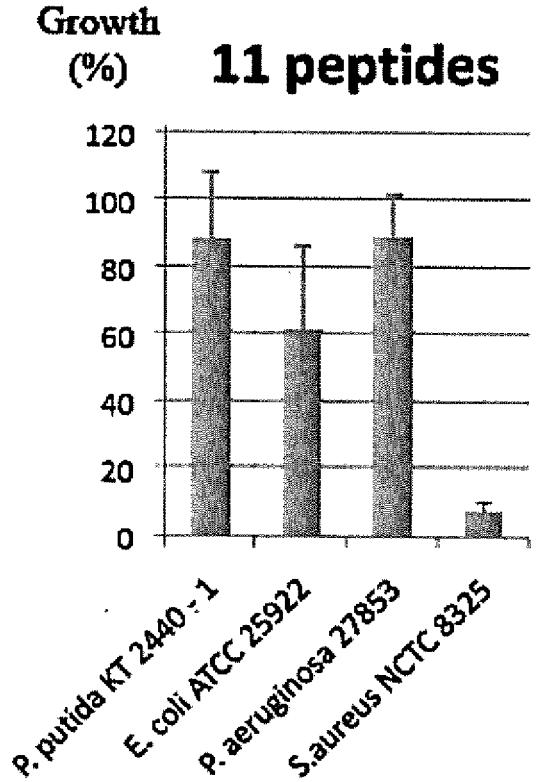

Growth
(%)
11 peptides
120
100
80
60
40
20
0
P. putida KT 2440 - 1
E. coli ATCC 25922
P. aeruginosa 27853
S.aureus NCTC 8325

FIG. 3B

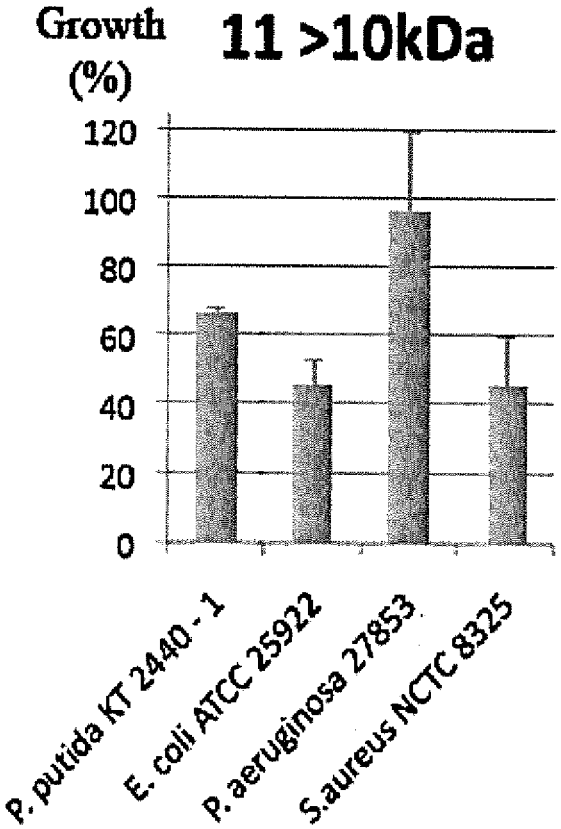

Growth
(%)
11 >10kDa
120
100
80
60
40
20
0
P. putida KT 2440 - 1
E. coli ATCC 25922
P. aeruginosa 27853
S.aureus NCTC 8325

FIG. 3C

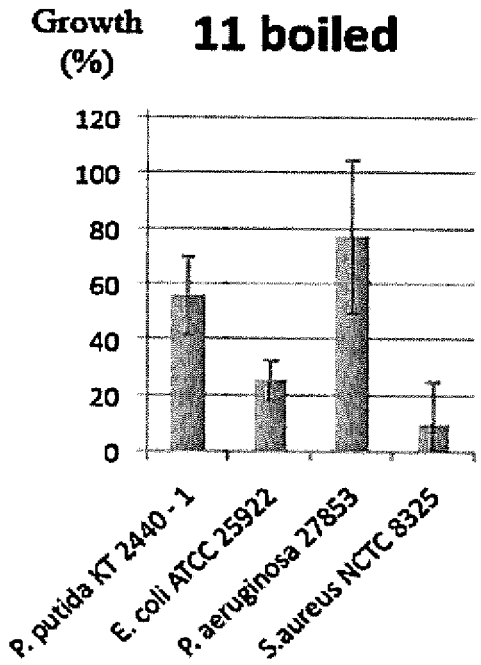

Growth (%)
11 boiled
120
100
80
60
40
20
0
P. putida KT 2440 - 1
E. coli ATCC 25922
P. aeruginosa 27853
S.aureus NCTC 8325

FIG. 4A

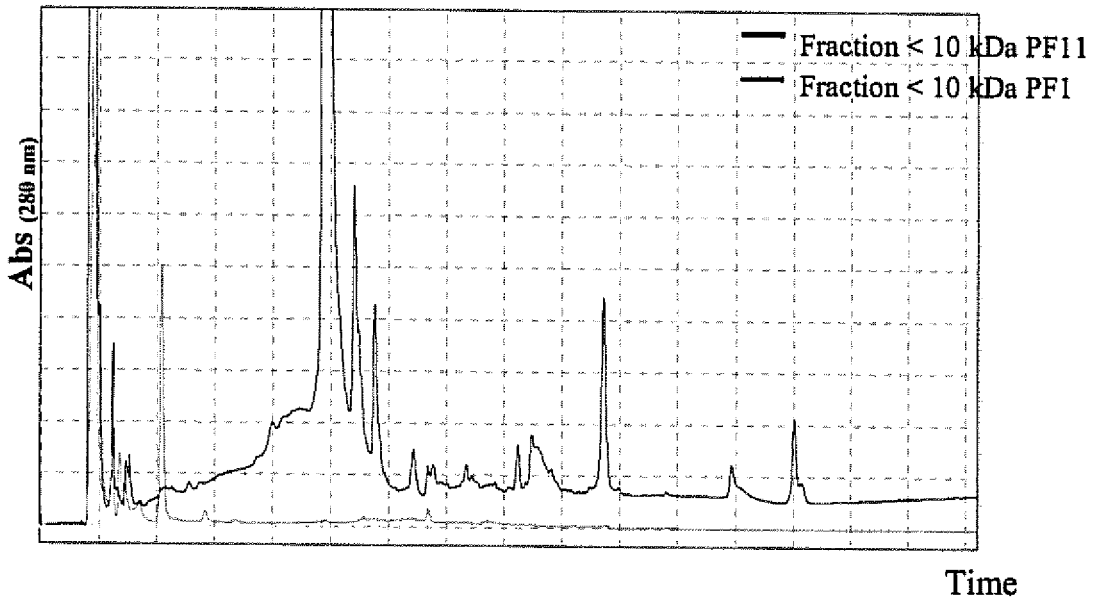

Fraction < 10 kDa PF11
Fraction < 10 kDa PF1
Abs (280 nm)
Time

FIG. 4B

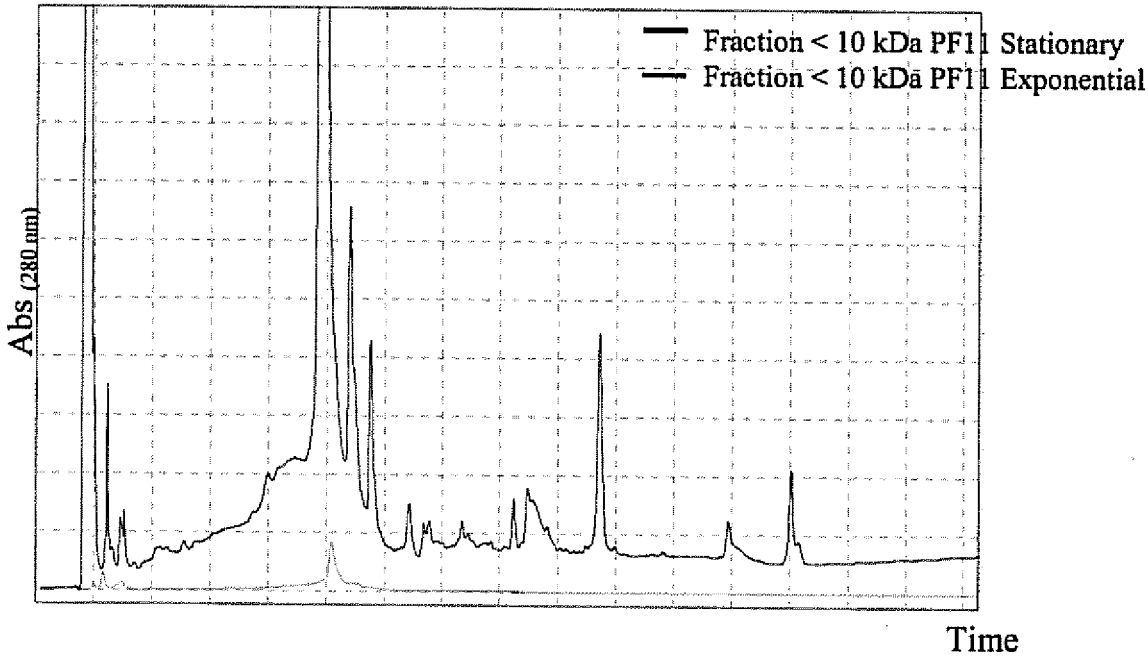

Fraction < 10 kDa PF11 Stationary
Fraction < 10 kDa PF11 Exponential
Abs (280 nm)
Time

FIG. 5

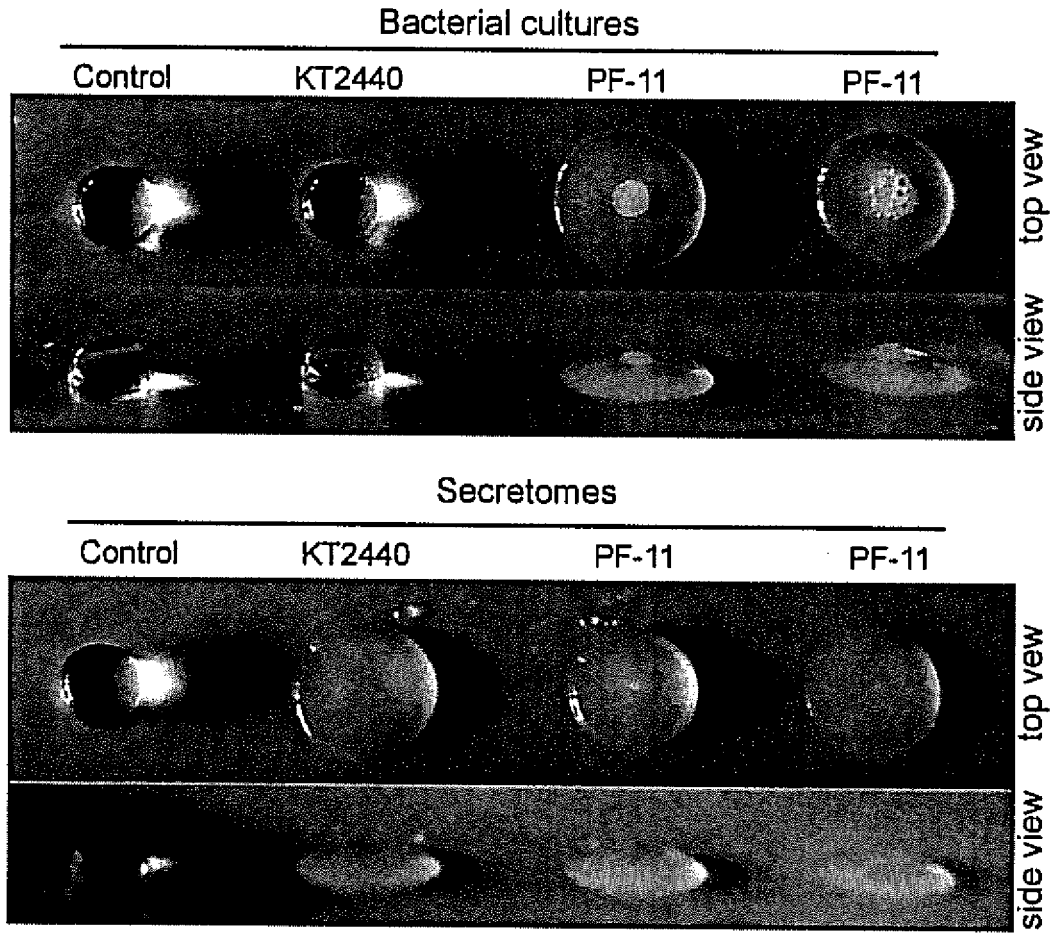

Bacterial cultures
Control
KT2440
PF-11
PF-11
top vew
side view
Secretomes
Control
KT2440
PF-11
PF-11
top vew
side view

FIG. 6

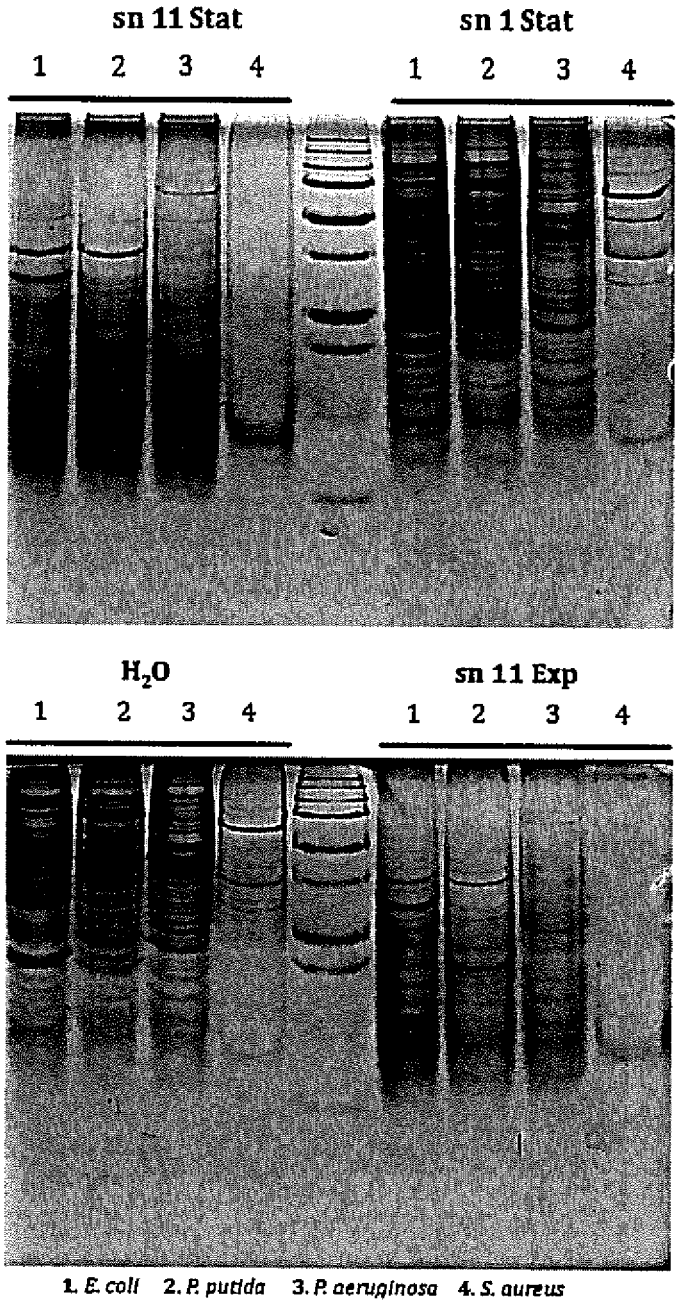

sn 11 Stat
1 2 3 4
sn 1 Stat
1 2 3 4
H2O
1 2 3 4
sn 11 Exp
1 2 3 4
1. E. coli 2. P. putida 3. P. aeruginosa 4. S. aureus

FIG. 7A

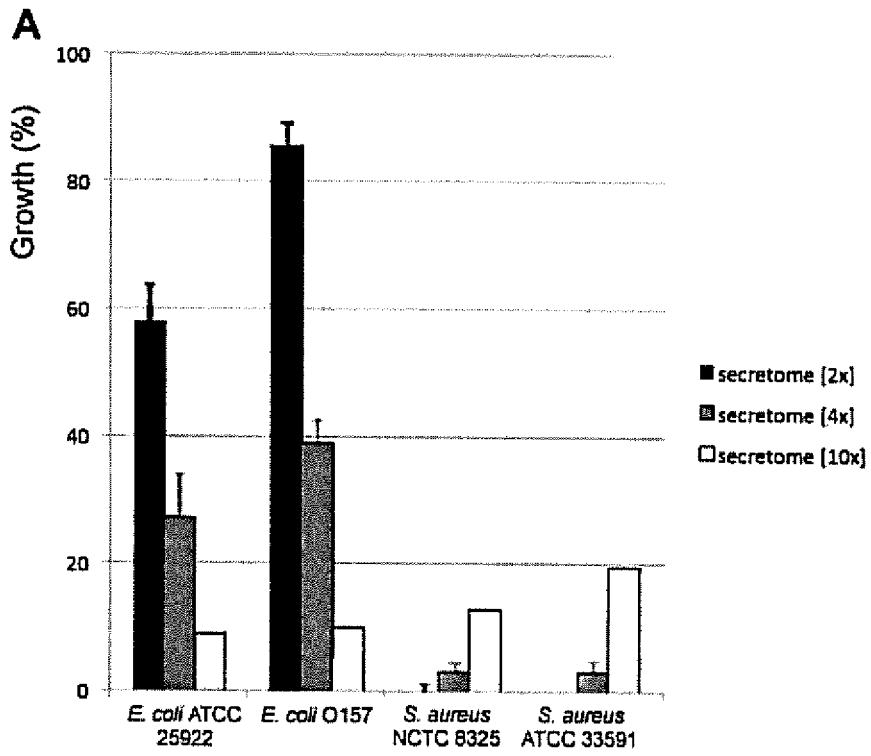

A
Growth (%)
100
80
60
40
20
0
E. coli ATCC 25922
E. coli O157
S. aureus NCTC 8325
S. aureus ATCC 33591
secretome [2x]
secretome [4x]
secretome [10x]

FIG. 7B

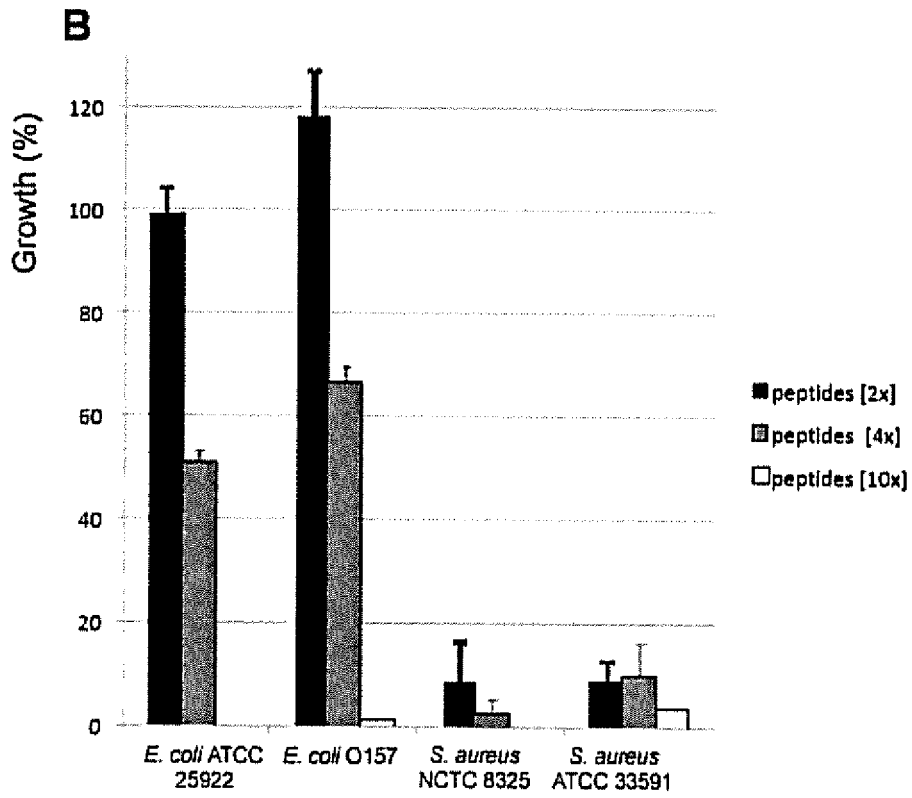

B
Growth (%)
120
100
80
60
40
20
0
E. coli ATCC 25922
E. coli O157
S. aureus NCTC 8325
S. aureus ATCC 33591
peptides [2x]
peptides [4x]
peptides [10x]

FIG. 7C

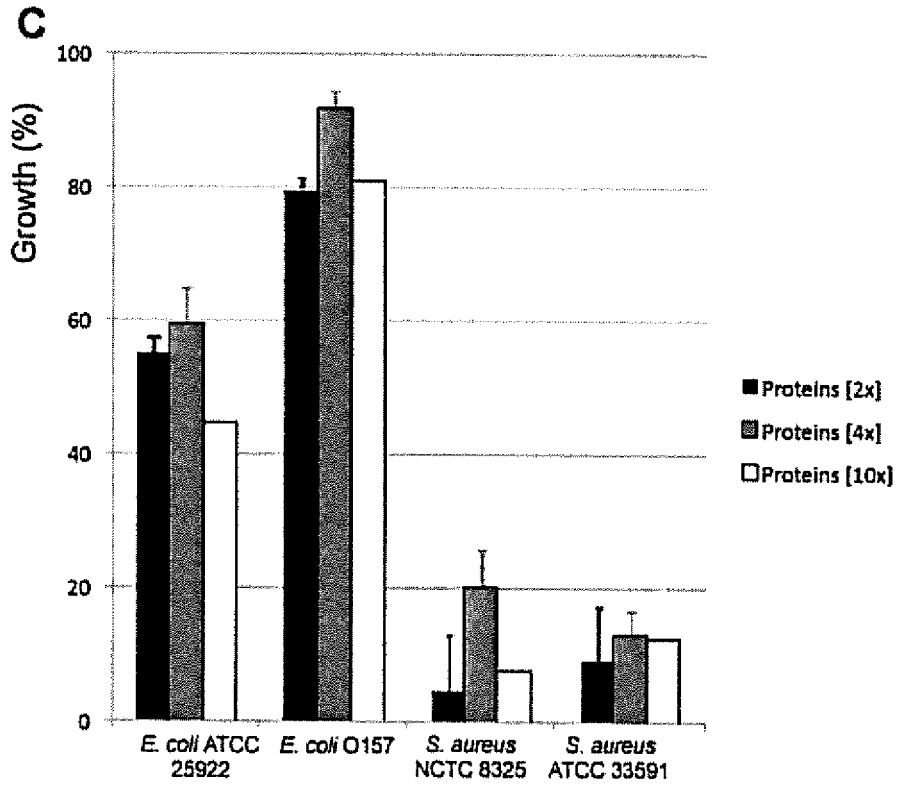

C
Growth (%)
100
80
60
40
20
0
E. coli ATCC 25922
E. coli O157
S. aureus NCTC 8325
S. aureus ATCC 33591
Proteins [2x]
Proteins [4x]
Proteins [10x]

FIG. 7D

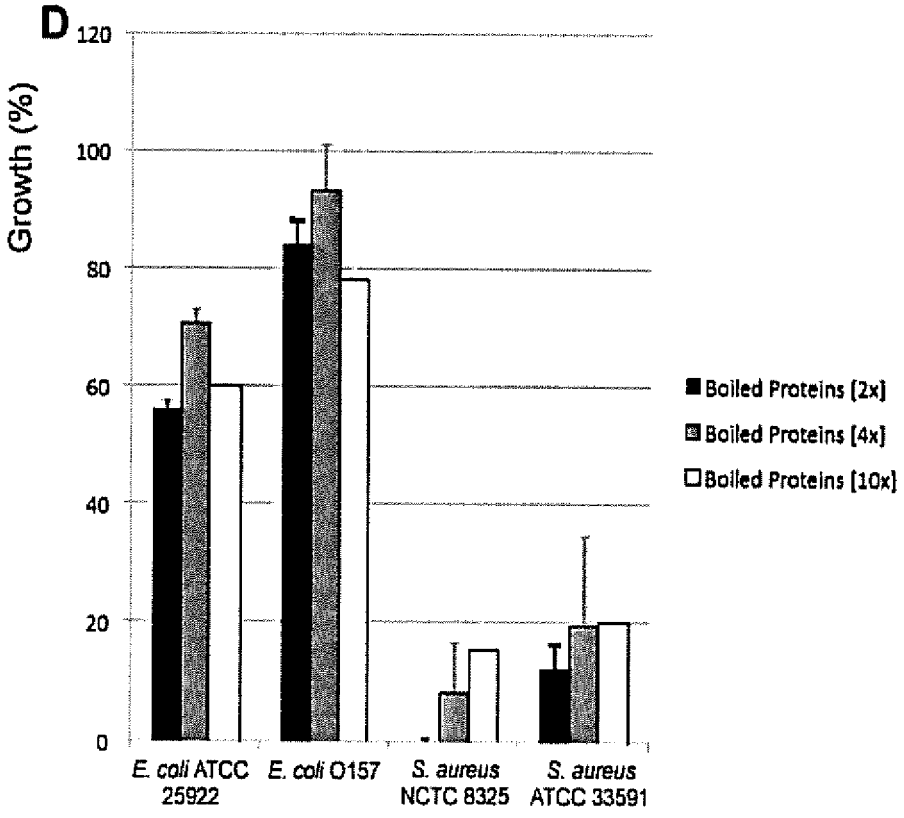

D
Growth (%)
120
100
80
60
40
20
0
E. coli ATCC 25922
E. coli O157
S. aureus NCTC 8325
S. aureus ATCC 33591
Boiled Proteins [2x]
Boiled Proteins [4x]
Boiled Proteins [10x]

FIG. 8A

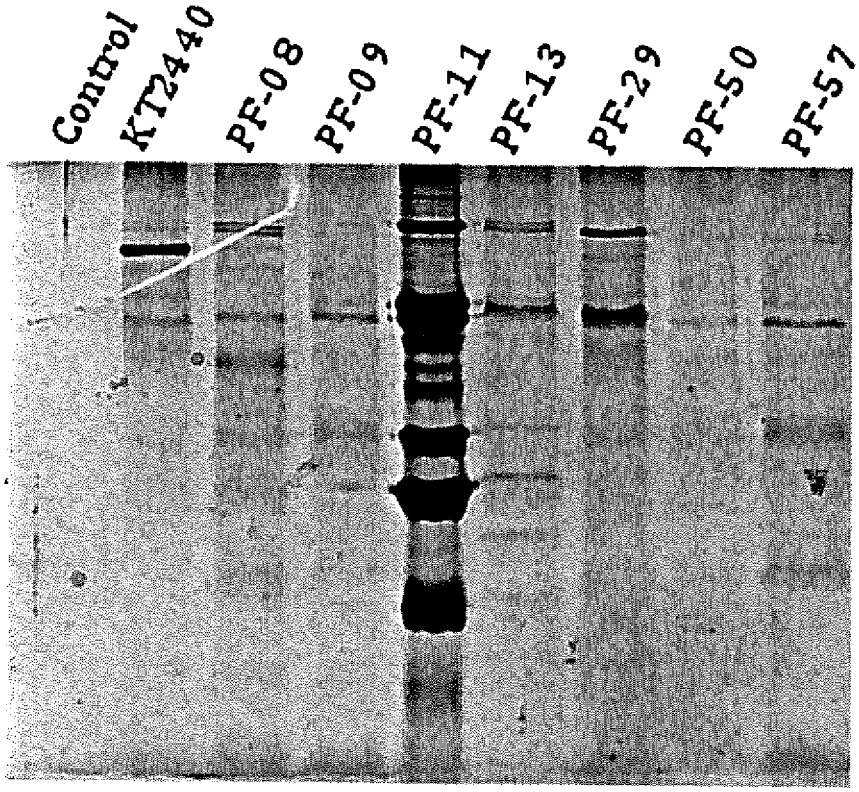

Control
KT2440
PF-08
PF-09
PF-11
PF-13
PF-29
PF-50
PF-57

FIG. 8B

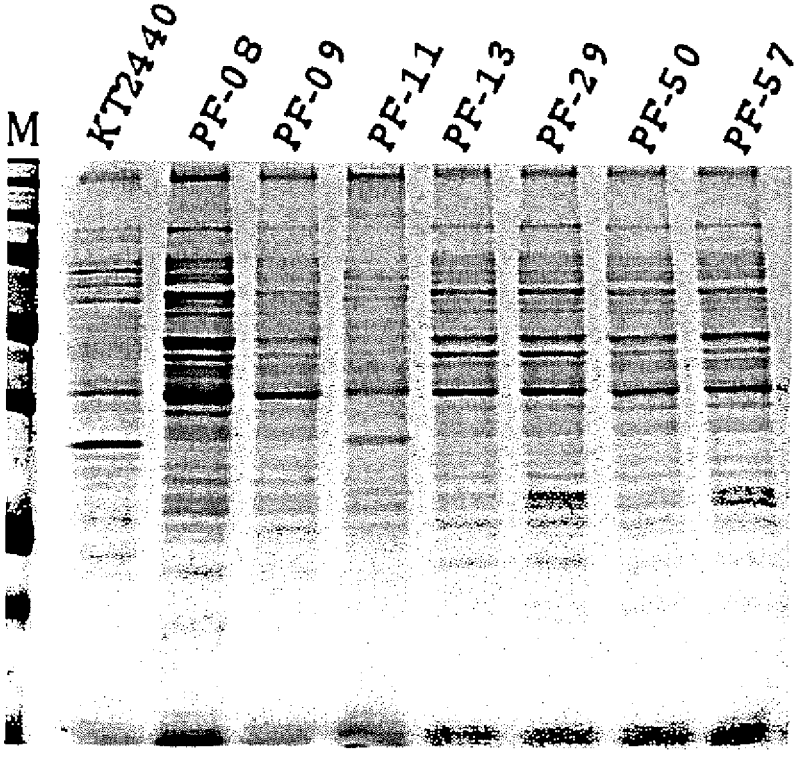

M
KT2440
PF-08
PF-09
PF-11
PF-13
PF-29
PF-50
PF-57

FIG. 8C

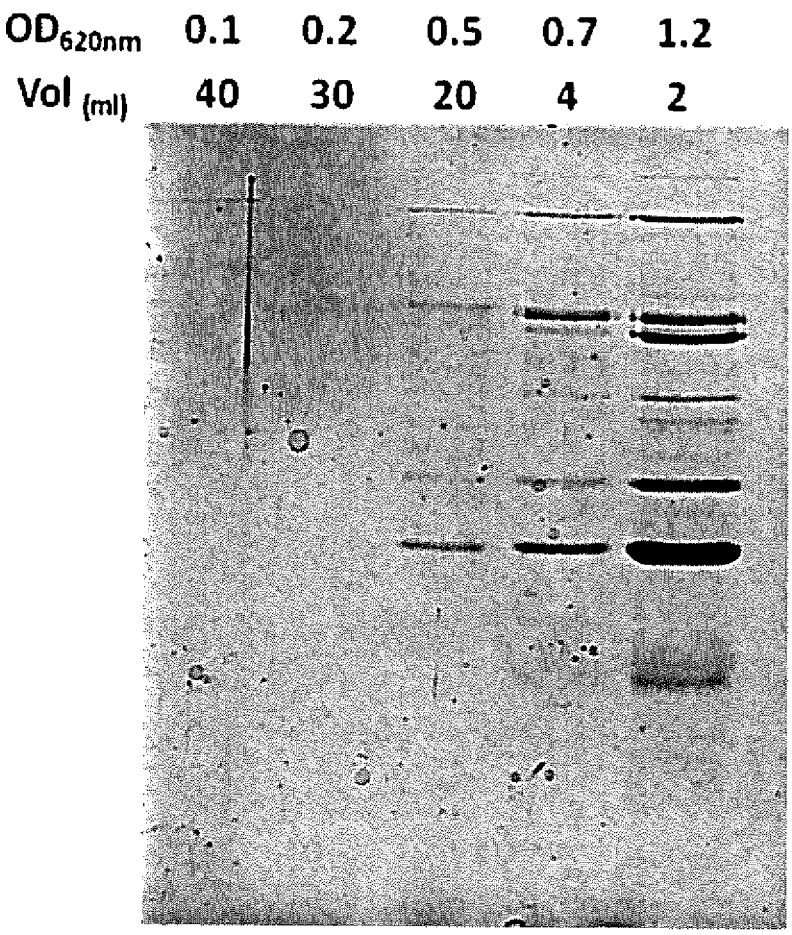


FIG. 9A

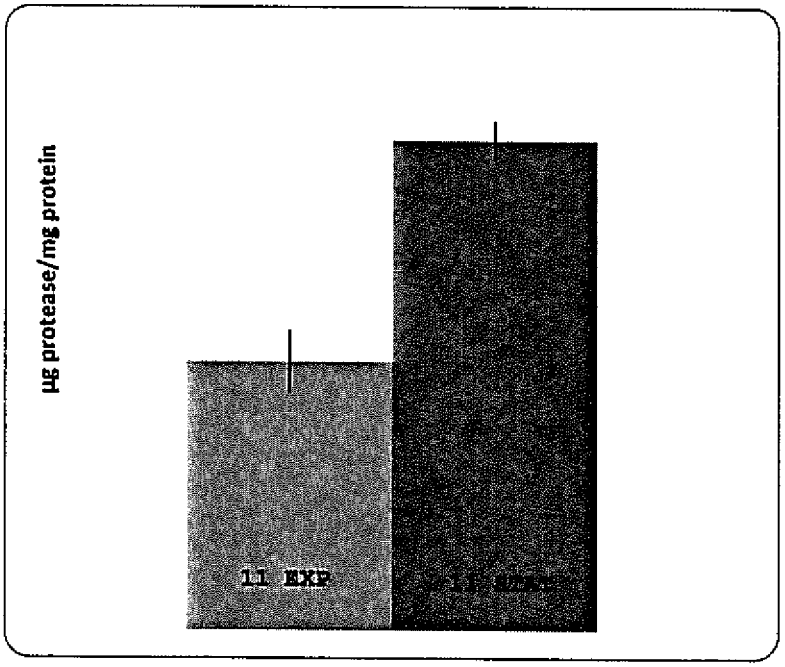

µg protease/mg protein
11 EXP

FIG. 9B

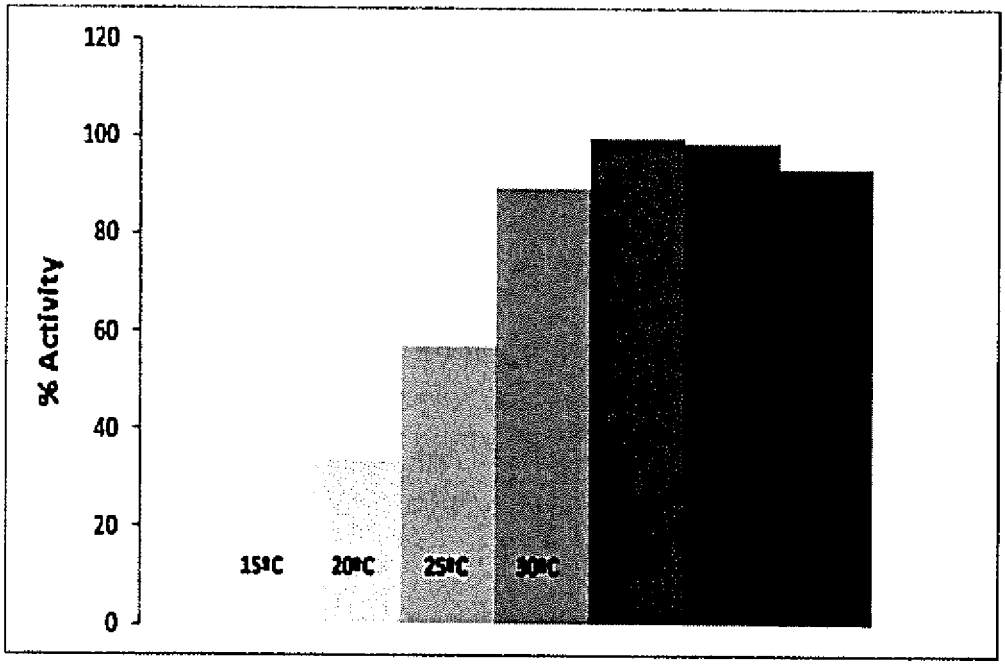

120
100
80
60
40
20
0
% Activity
15°C
20°C
25°C
30°C

FIG. 9C

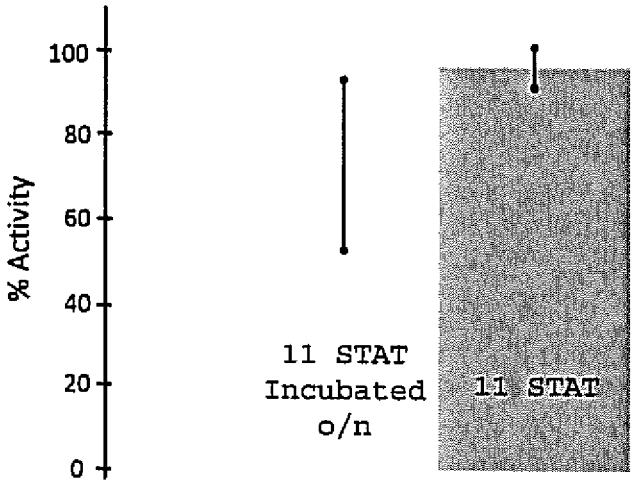

100
80
60
40
20
0
% Activity
11 STAT
Incubated
o/n
11 STAT

FIG. 9D

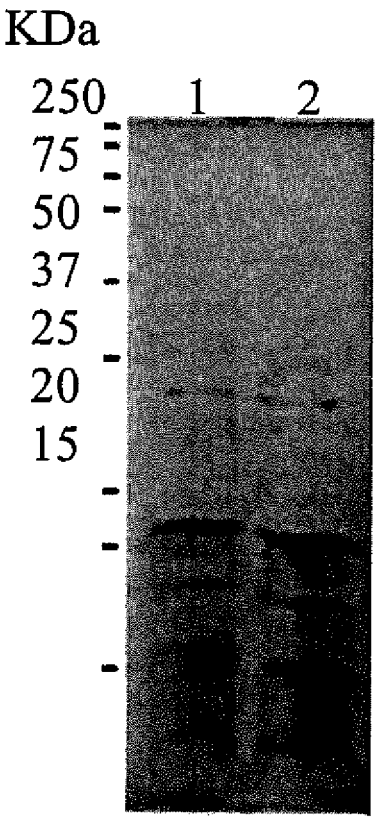

KDa
250
75
50
37
25
20
15
1
2

FIG. 10A

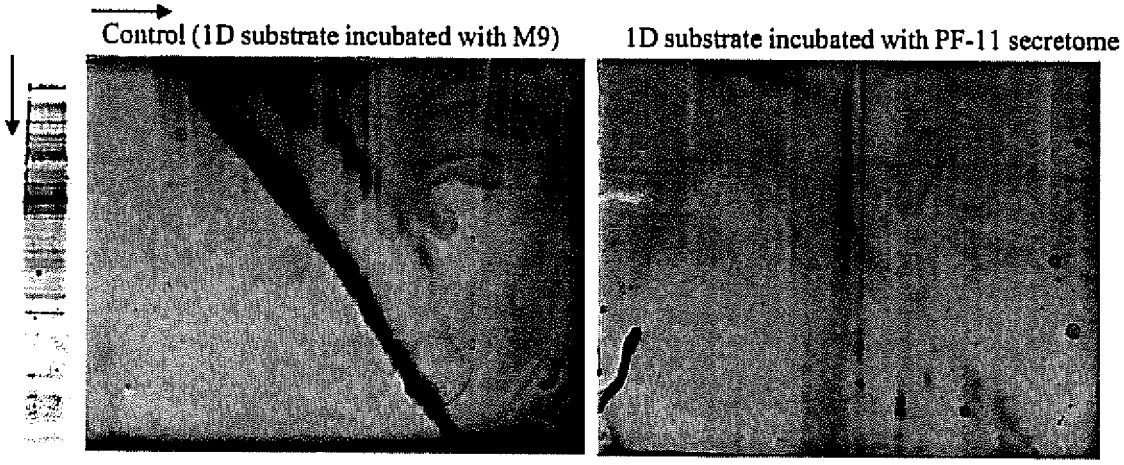


FIG. 10B

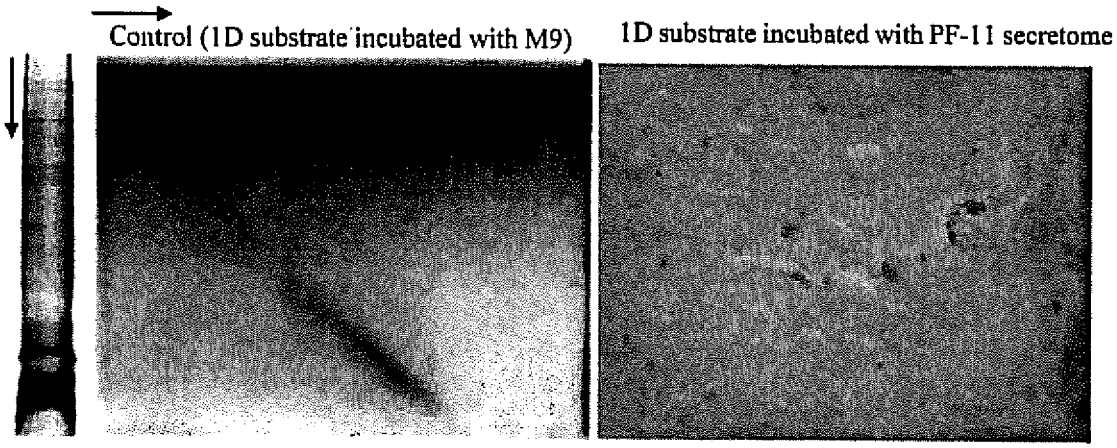


FIG. 11

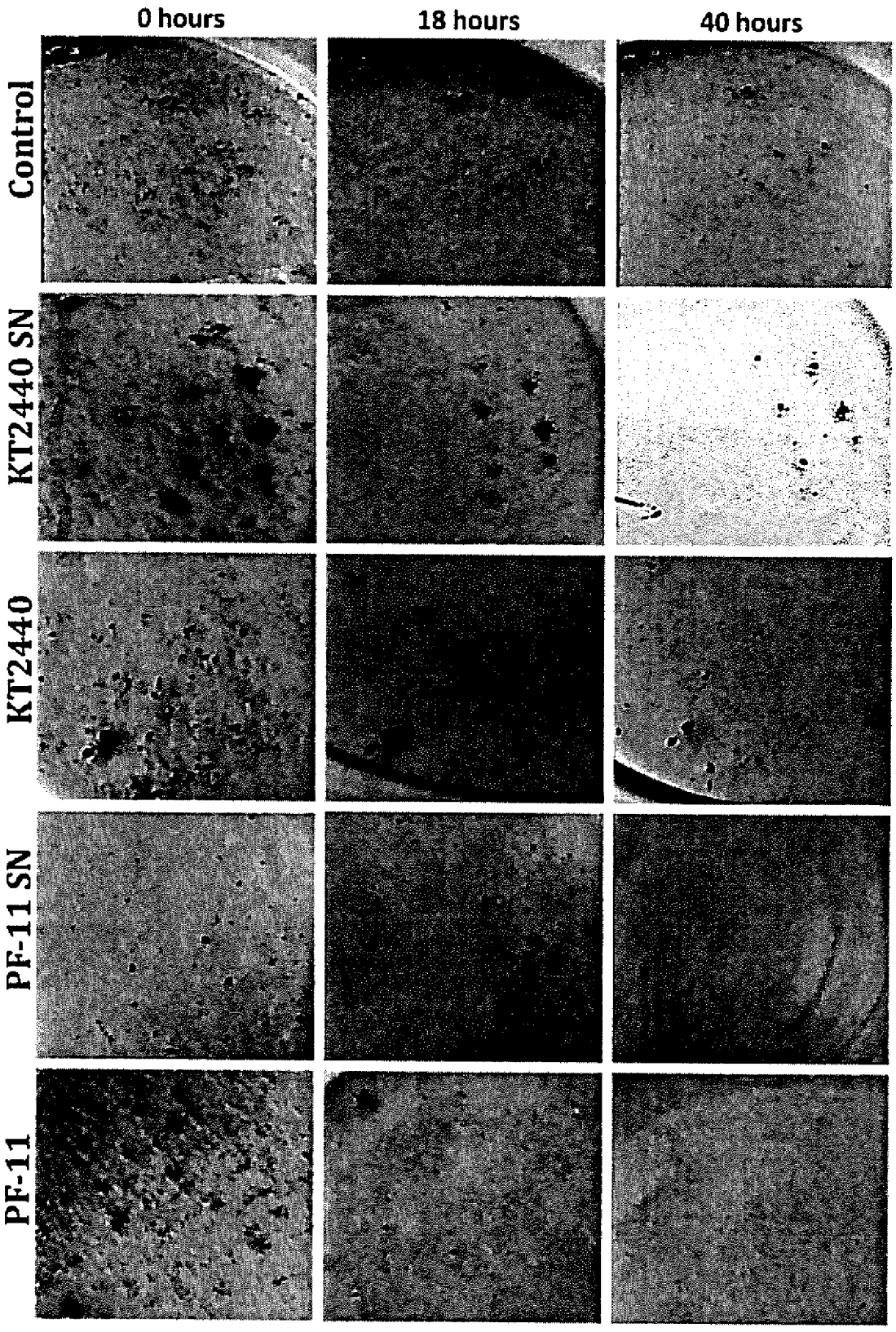

0 hours
18 hours
40 hours
Control
KT2440 SN
KT2440
PF-11 SN
PF-11

FIG. 12

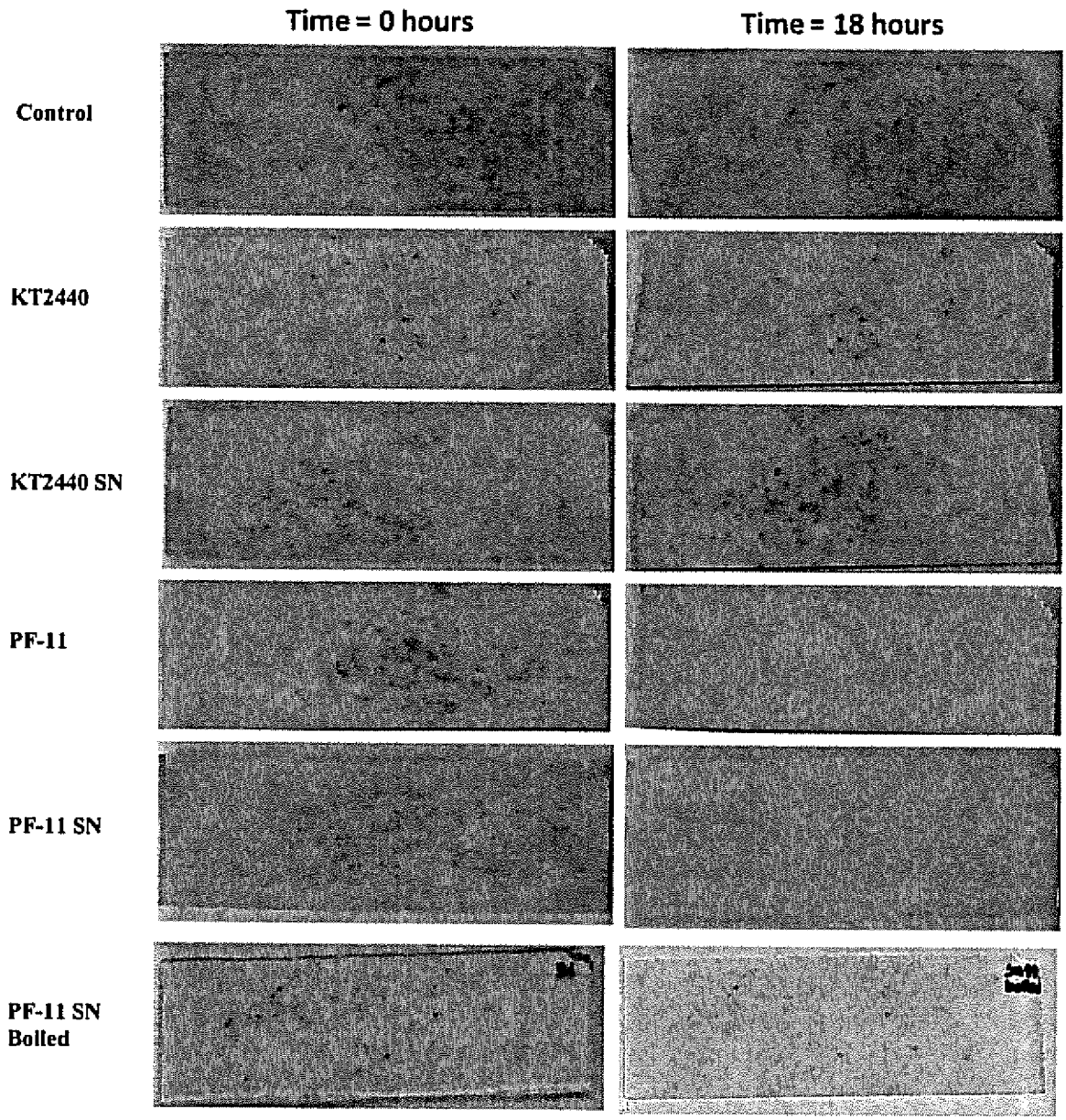

Time = 0 hours
Time = 18 hours
Control
KT2440
KT2440 SN
PF-11
PF-11 SN
PF-11 SN Boiled

FIG. 13A

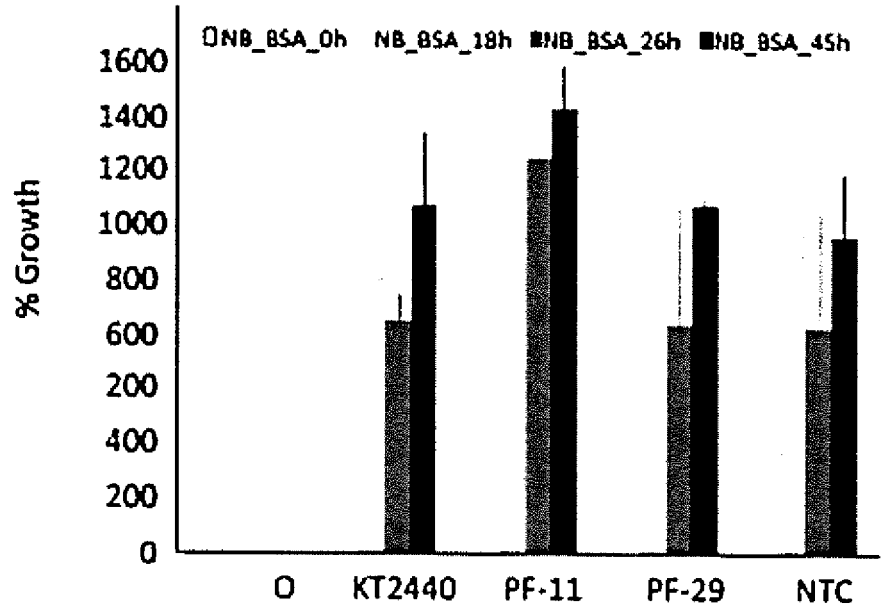


FIG. 13B

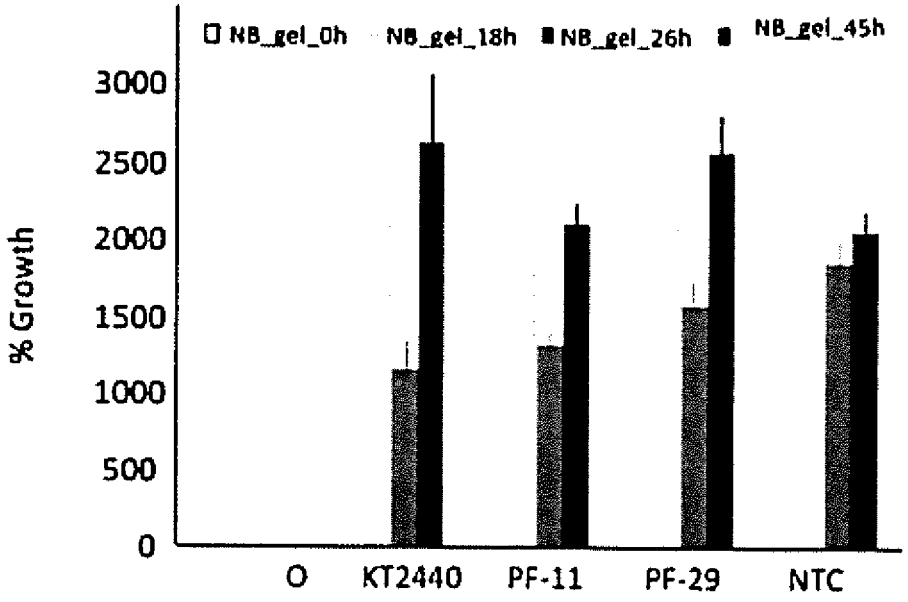


FIG. 14A

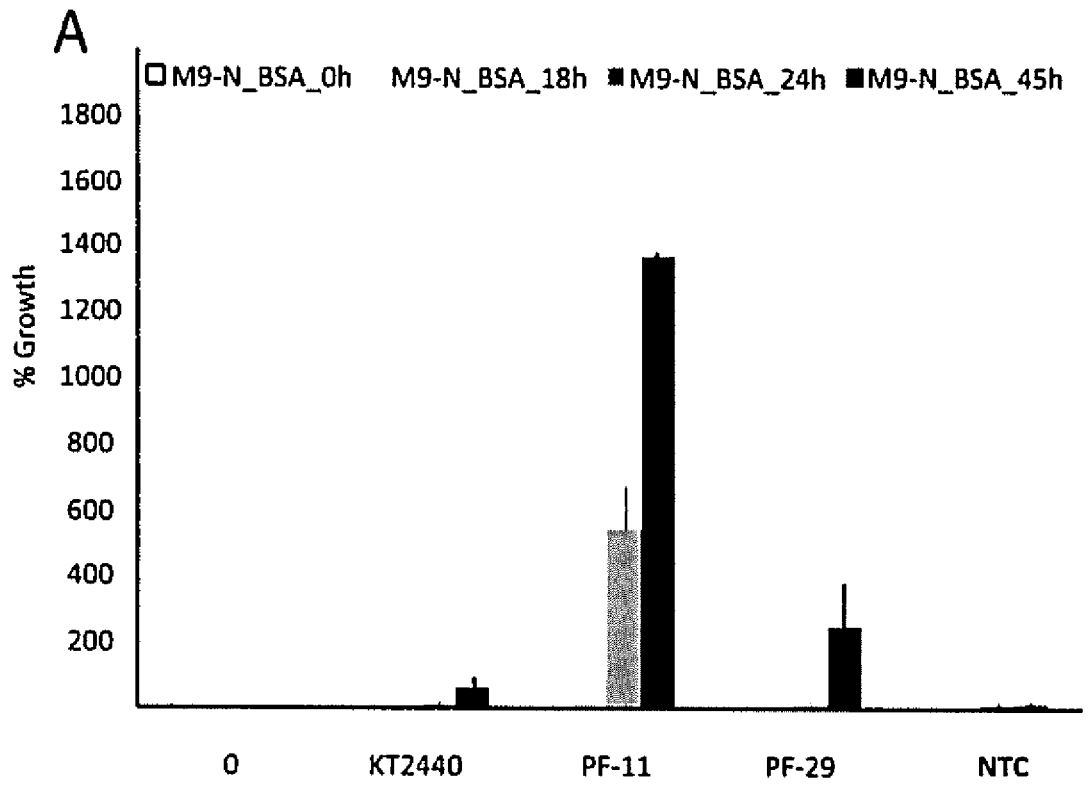


FIG. 14B

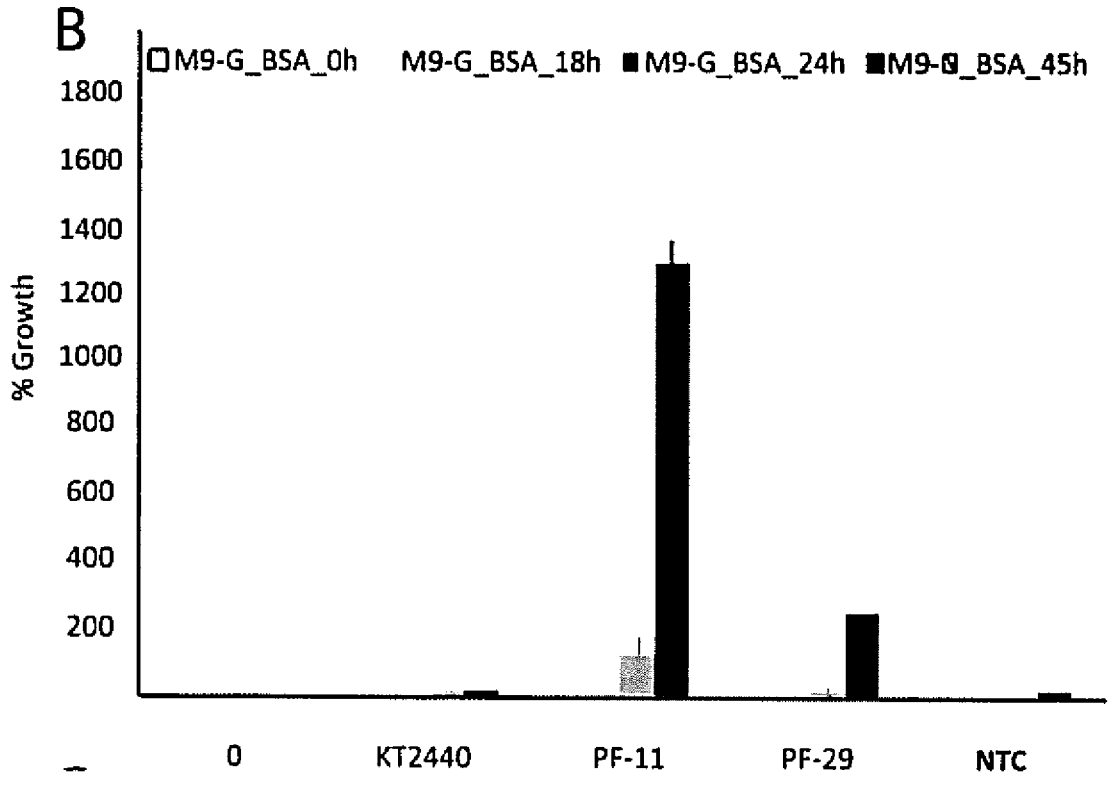


FIG. 14C

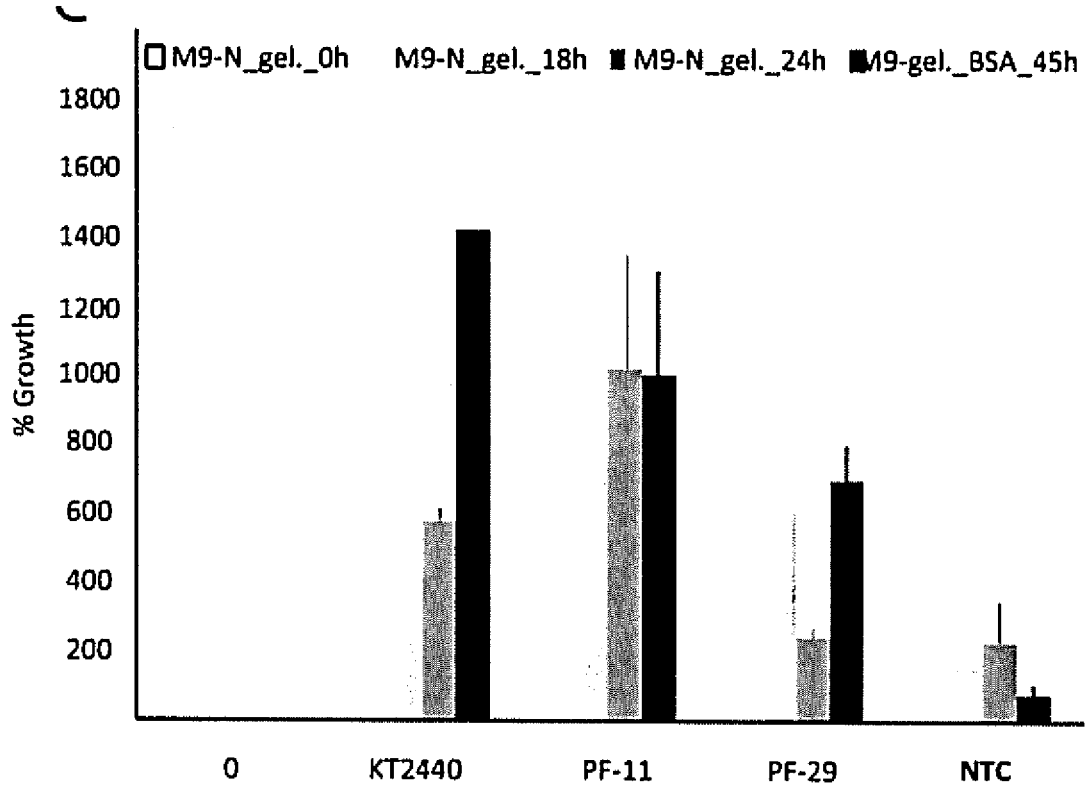


FIG. 14D

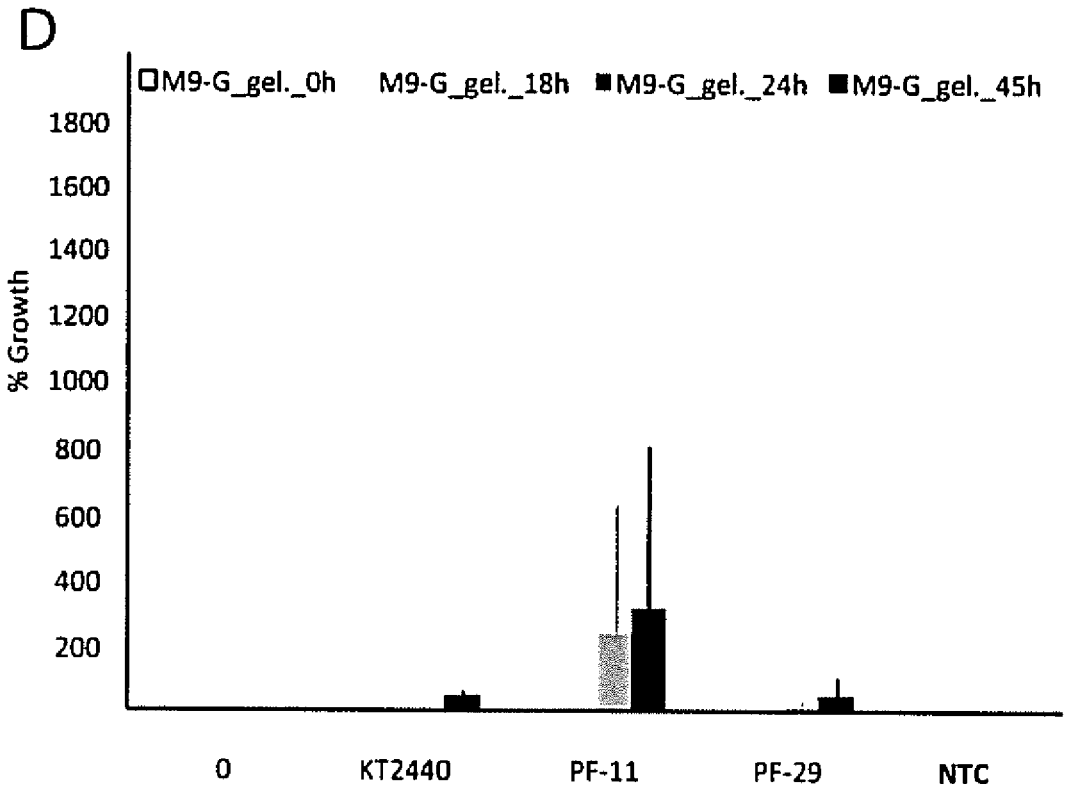


FIG. 14E

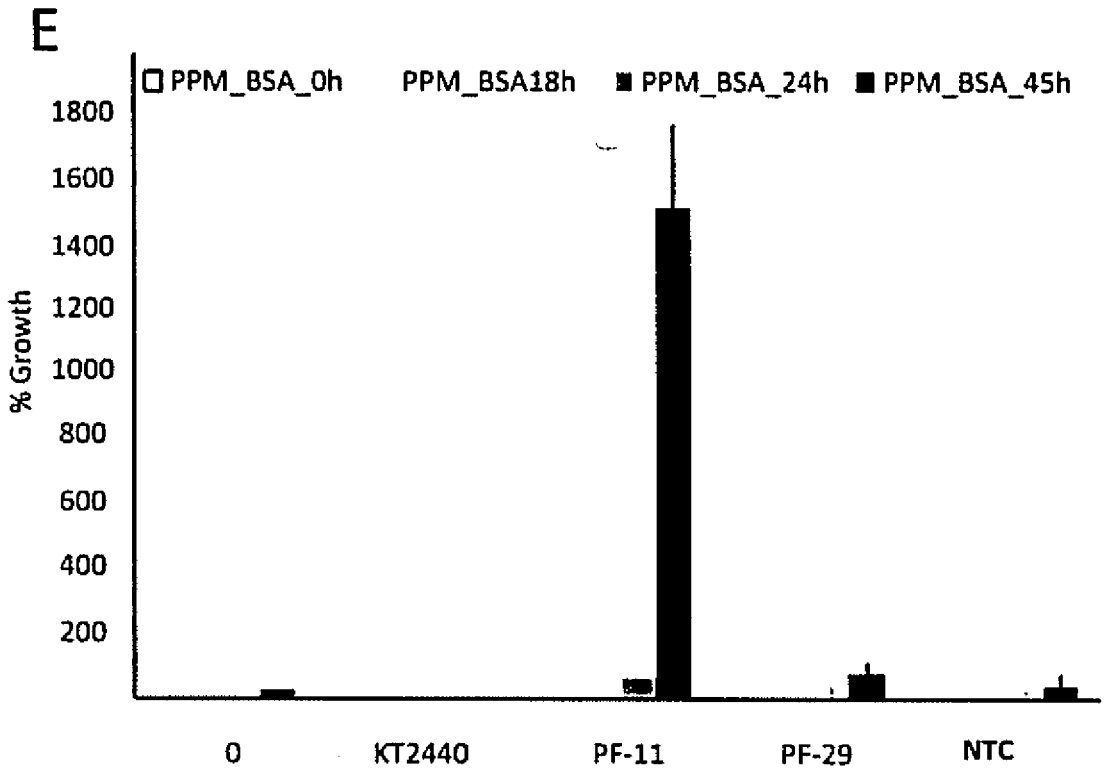


FIG. 14F

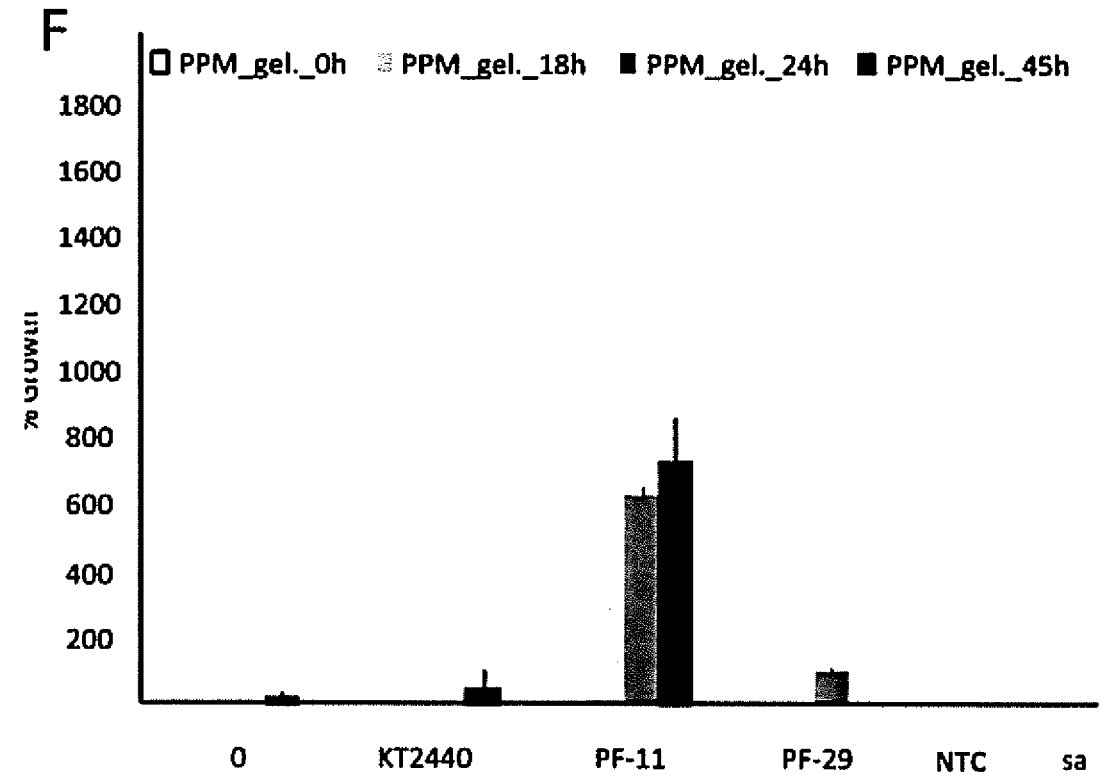


FIG. 15

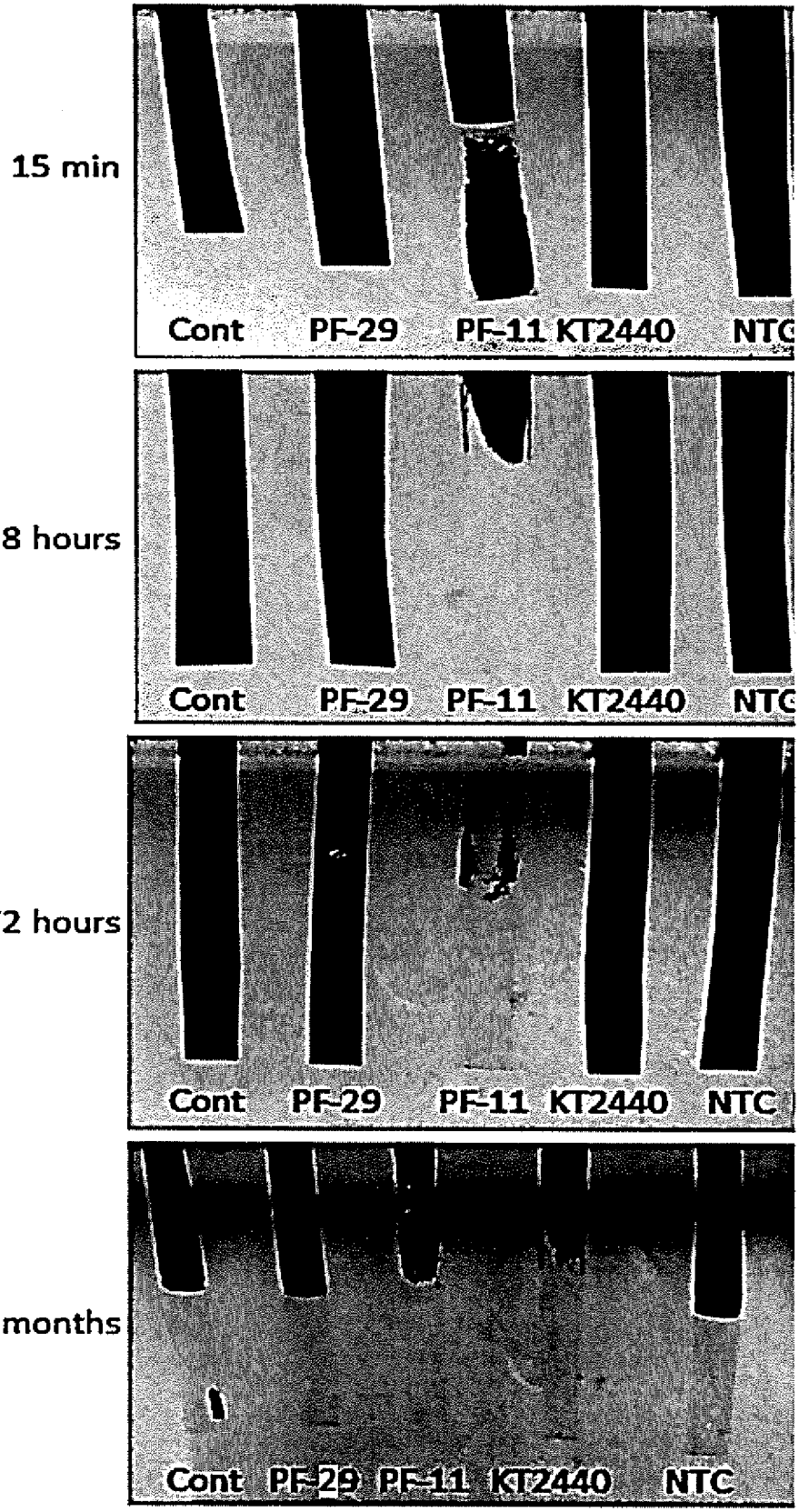

15 min
Cont
PF-29
PF-11
KT2440
NTC
8 hours
Cont
PF-29
PF-11
KT2440
NTC
72 hours
Cont
PF-29
PF-11
KT2440
NTC
>2 months
Cont
PF-29
PF-11
KT2440
NTC

FIG. 16A

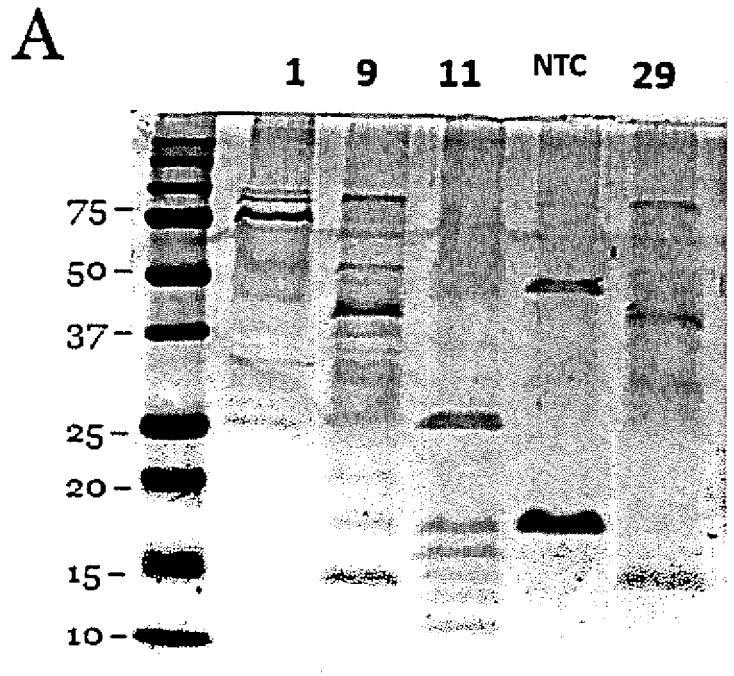


FIG. 16B

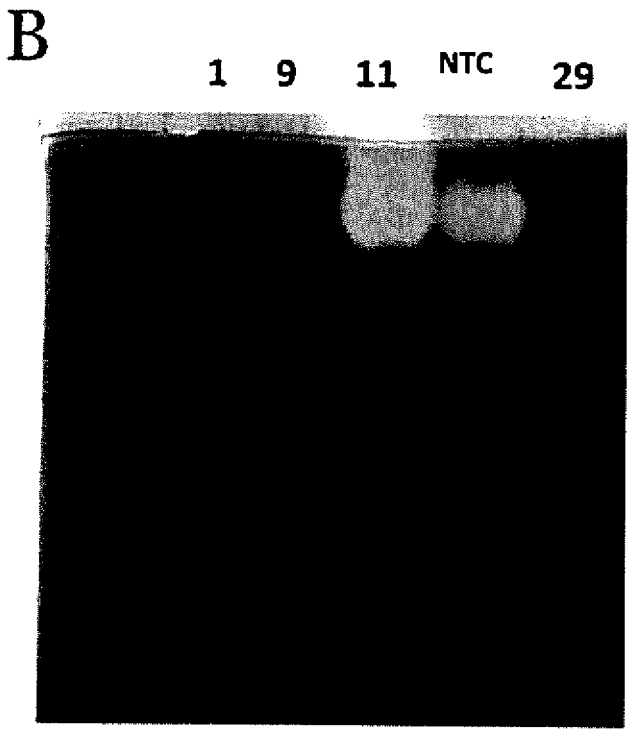


FIG. 17A

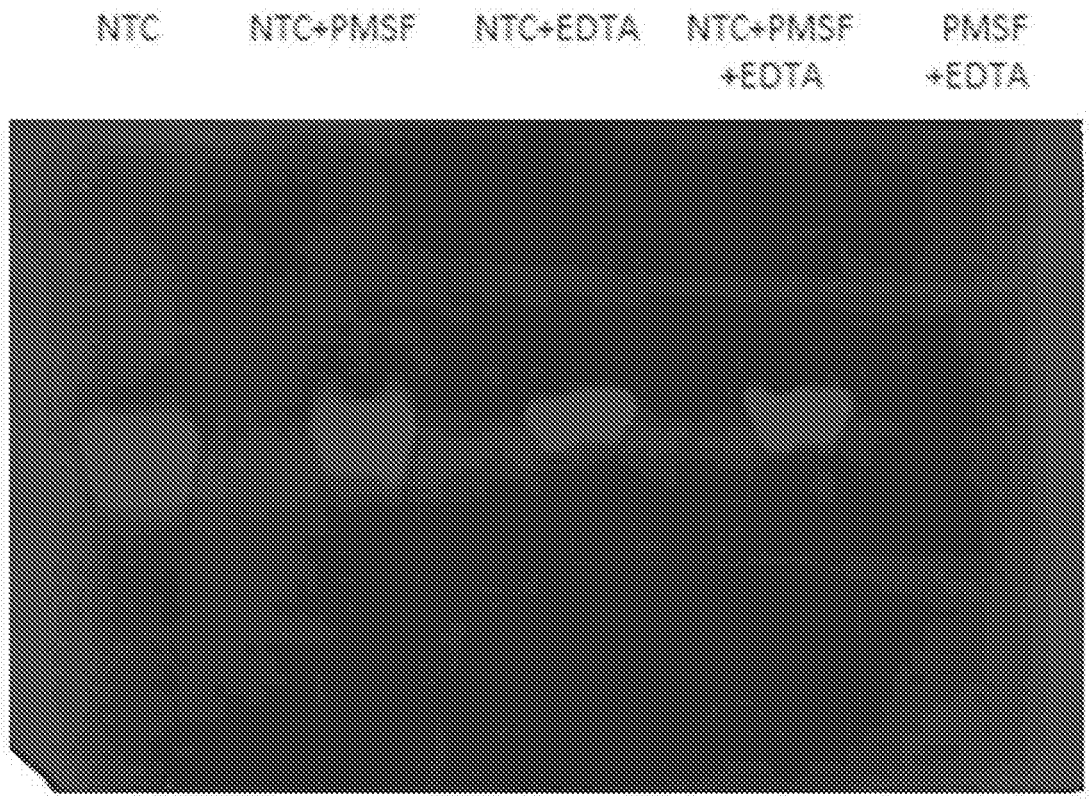


FIG. 17B

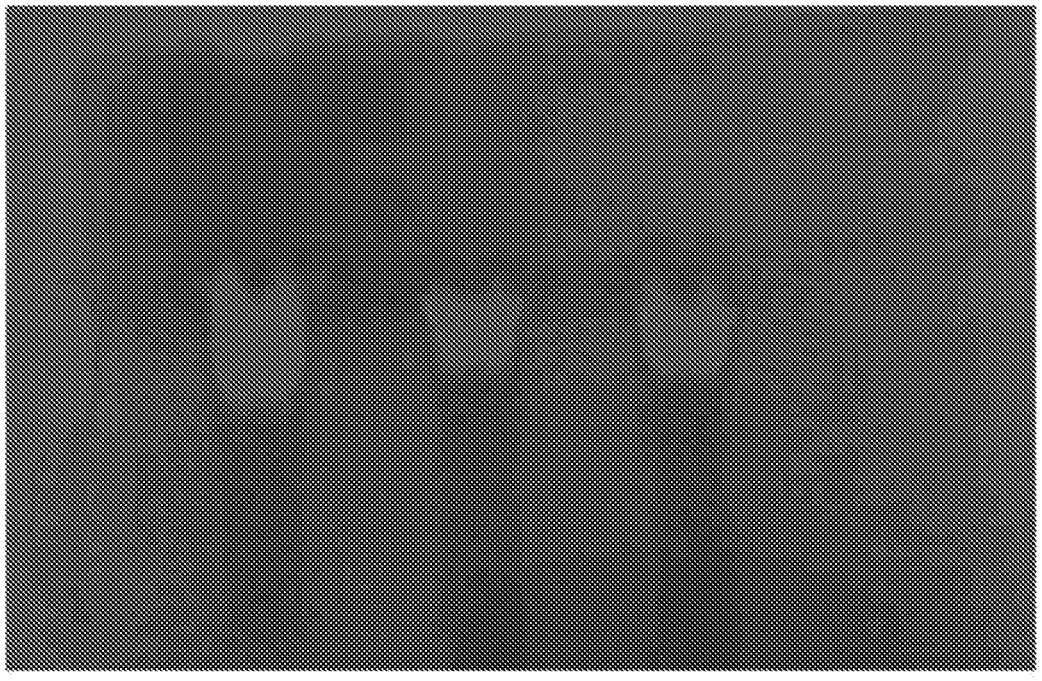
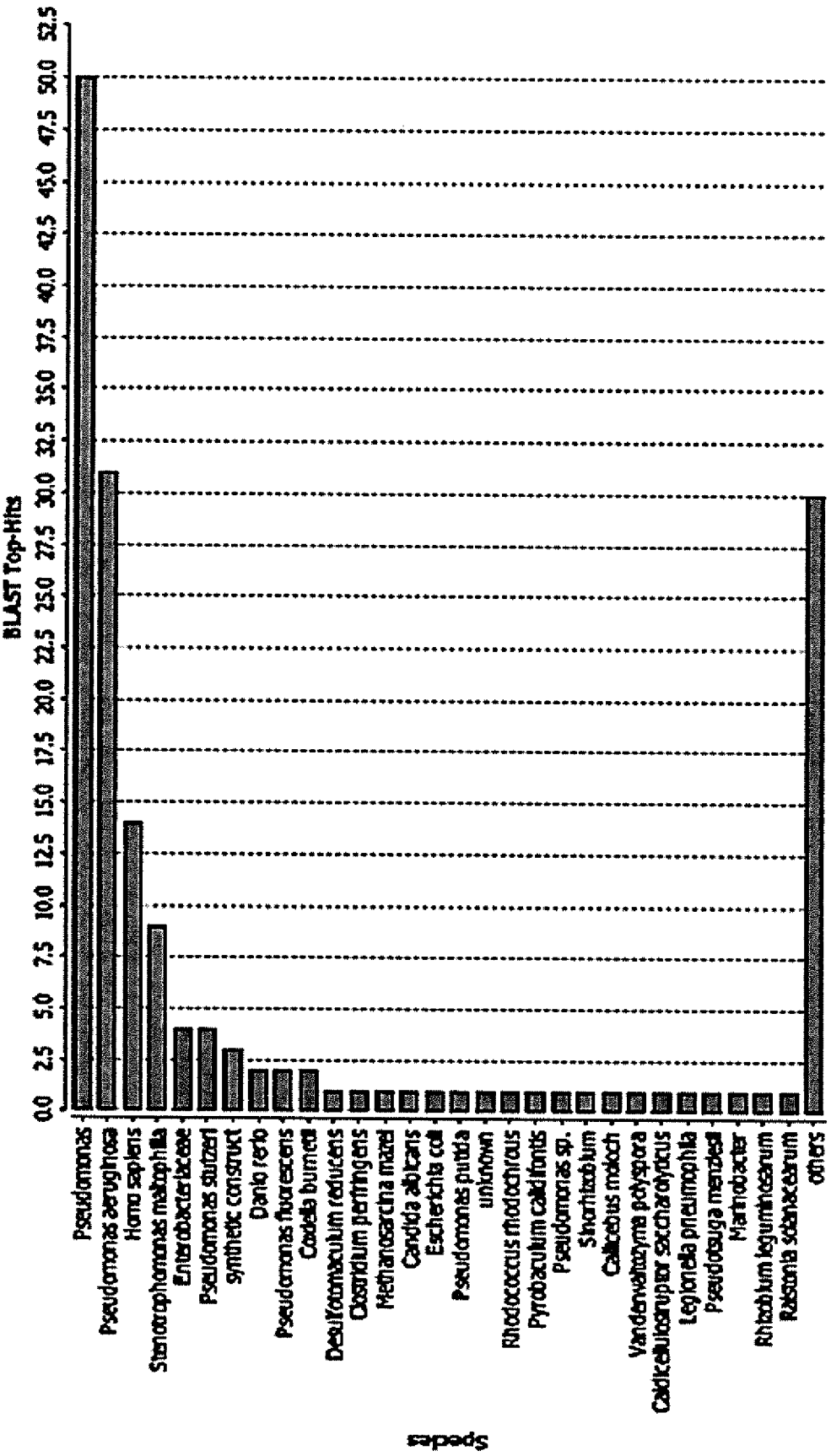


FIG. 18A


Top-Hit Species Distribution
BLAST Top-Hits
0.0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0 32.5 35.0 37.5 40.0 42.5 45.0 47.5 50.0 52.5
species
Pseudomonas
Pseudomonas aeruginosa
Homo sapiens
Stenotrophomonas maltophilia
Enterobacteriaceae
Pseudomonas stutzeri
synthetic construct
Danio rerio
Pseudomonas fluorescens
Coxiella burnetii
Desulfotomaculum reducens
Clostridium perfringens
Methanosarcina mazei
Candida albicans
Escherichia coli
Pseudomonas putida
unknown
Rhodococcus rhodochrous
Pyrobaculum calidifontis
Pseudomonas sp.
Shewanella sp.
Callicebus moloch
Vandenwaltozyma polyspora
Caldicellulosiruptor saccharolyticus
Legionella pneumophila
Pseudobuga menziesii
Nanobacter
Rhizobium leguminosarum
Ralstonia solanacearum
others

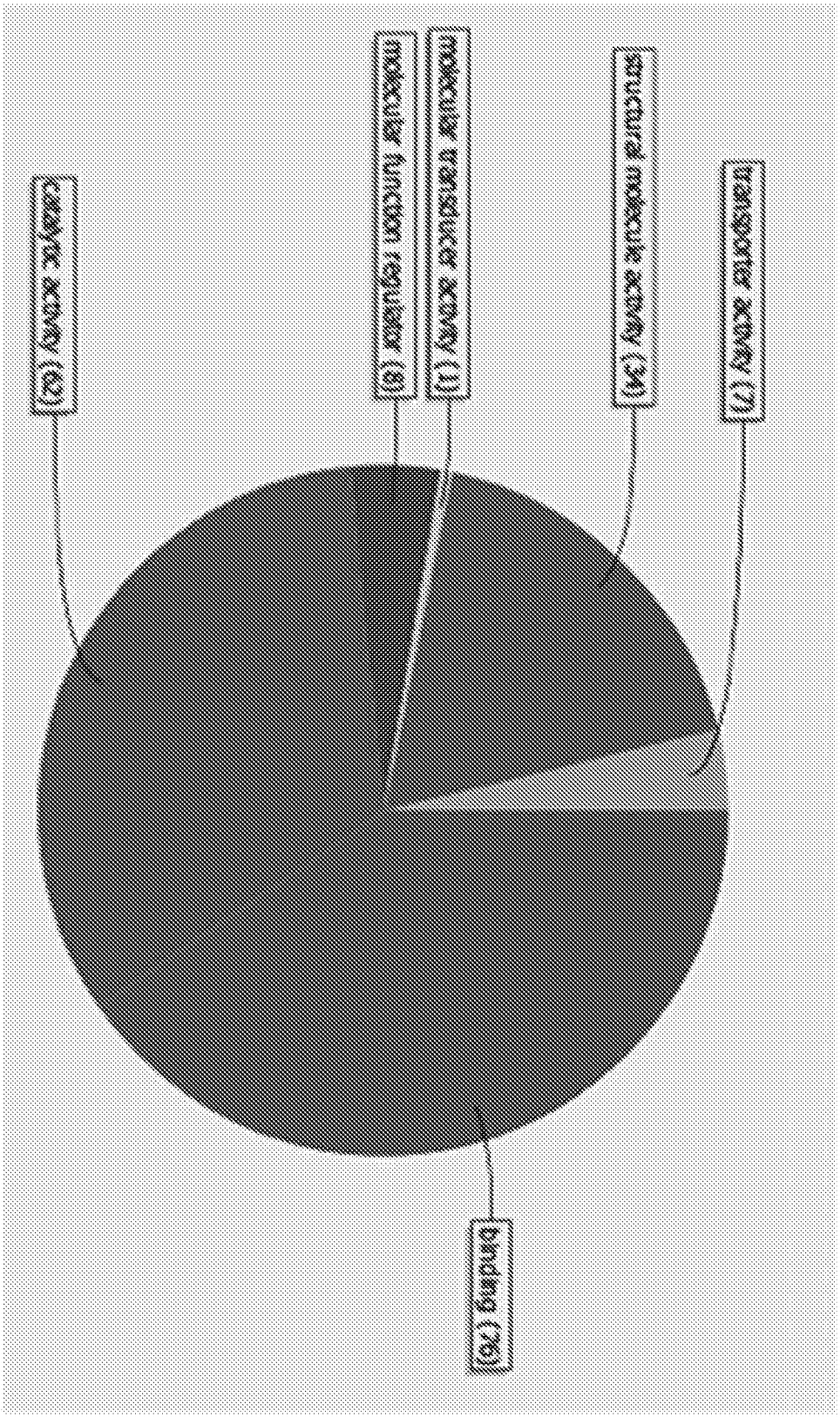

binding (26)
catalytic activity (62)
molecular function regulator (8)
molecular transducer activity (1)
structural molecule activity (34)
transporter activity (7)

FIG. 18B

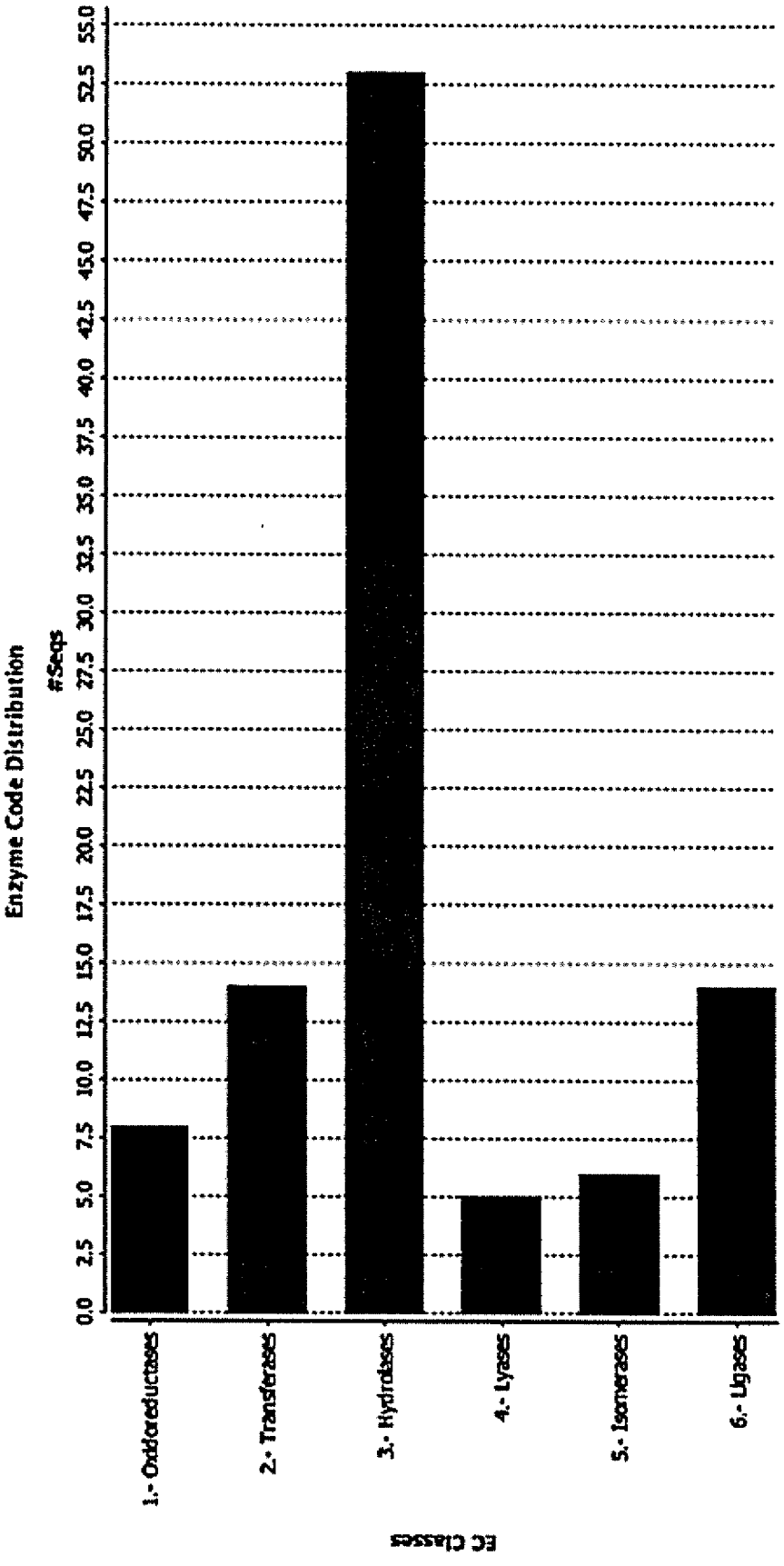

Enzyme Code Distribution
#Seqs
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5
35.0
37.5
40.0
42.5
45.0
47.5
50.0
52.5
55.0
1.- Oxidoreductases
2.- Transferases
3.- Hydrolases
4.- Lyases
5.- Isomerases
6.- Ligases
EC classes

FIG. 18C

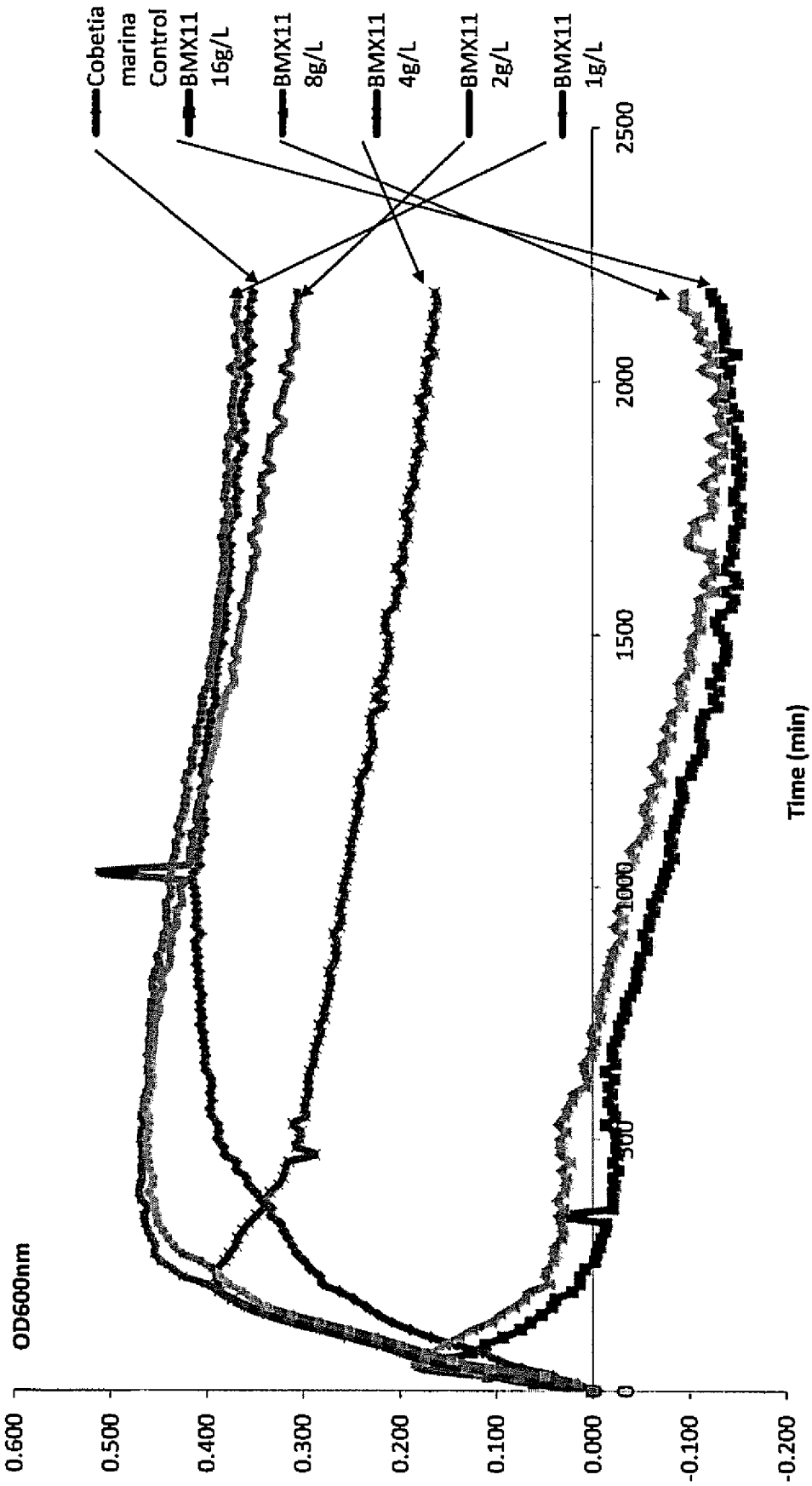

Cobetia marina Control
BMX11 16g/L
BMX11 8g/L
BMX11 4g/L
BMX11 2g/L
BMX11 1g/L
OD600nm
0.600
0.500
0.400
0.300
0.200
0.100
0.000
-0.100
-0.200
0
500
1000
1500
2000
2500
Time (min)

FIG. 19

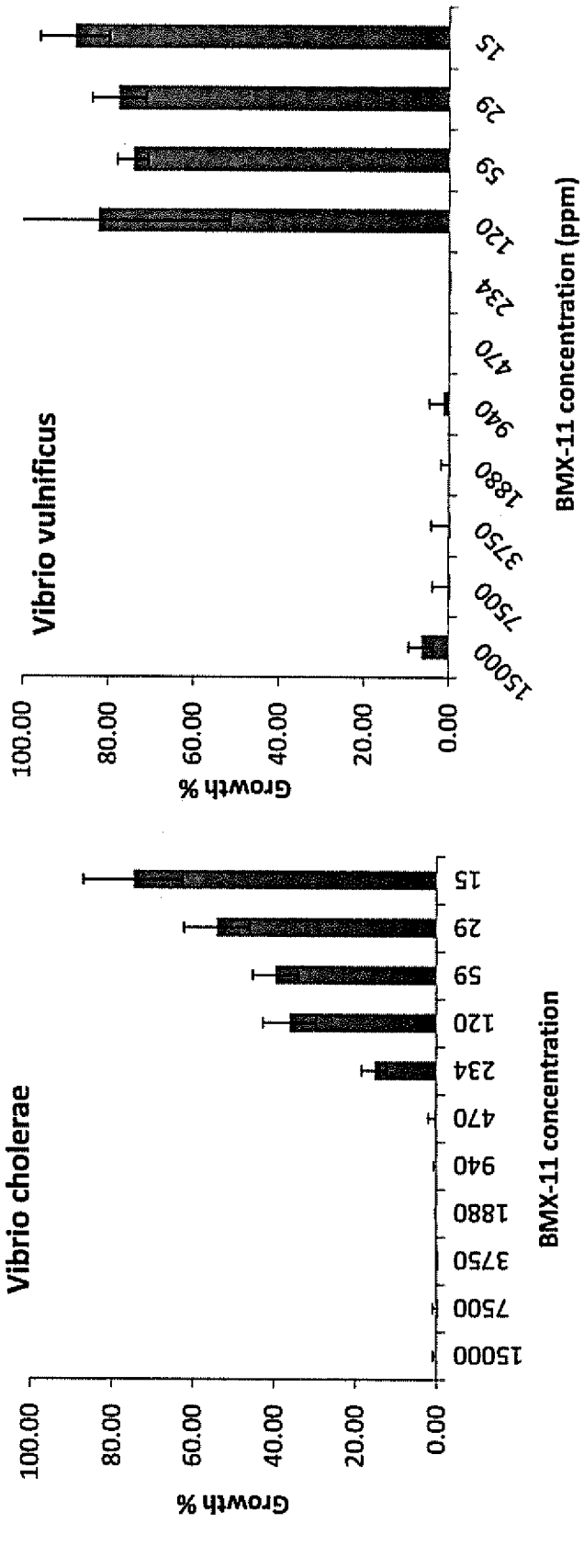

Vibrio vulnificus
Growth %
100.00
80.00
60.00
40.00
20.00
0.00
15000
7500
3750
1880
940
470
234
120
59
29
15
BMX-11 concentration (ppm)
Vibrio cholerae
Growth %
100.00
80.00
60.00
40.00
20.00
0.00
15000
7500
3750
1880
940
470
234
120
59
29
15
BMX-11 concentration

FIG. 20

FIG. 21

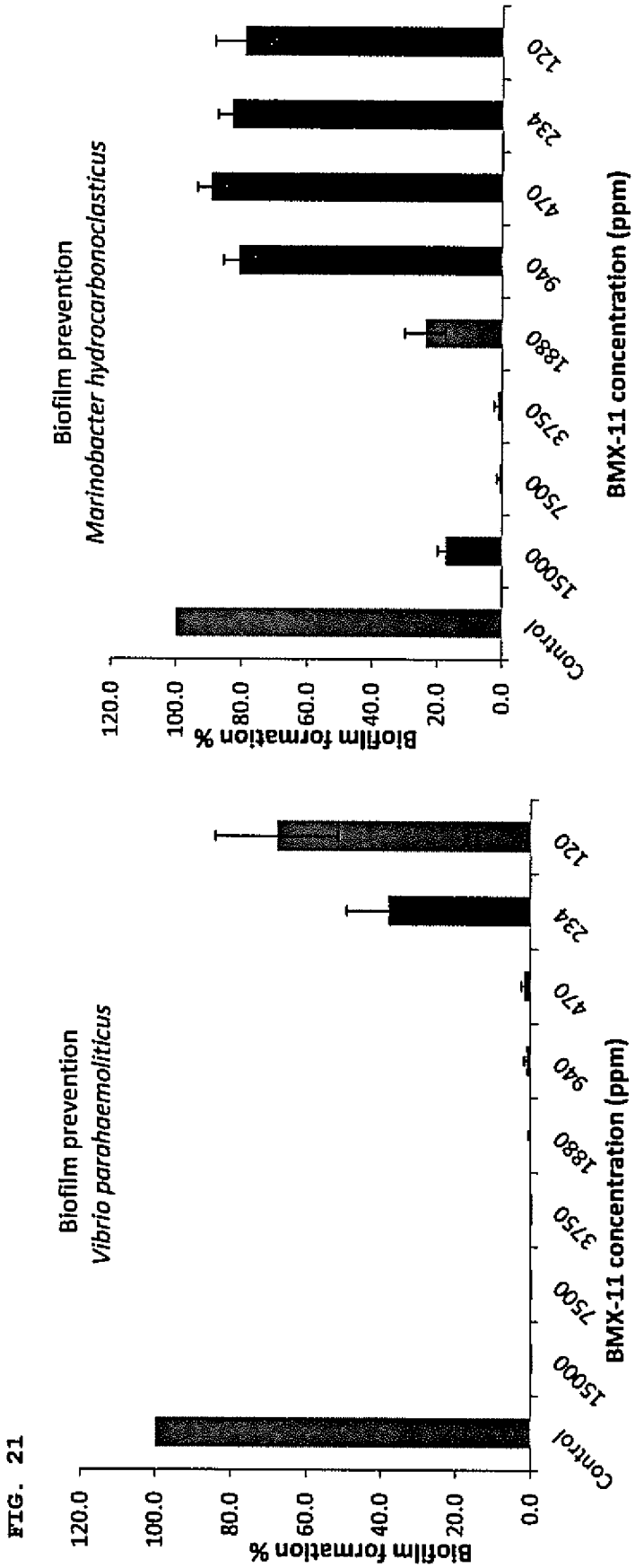

Biofilm prevention
Vibrio parahaemoliticus
Biofilm formation %
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Control
15000
7500
3750
1880
940
470
234
120
BMX-11 concentration (ppm)
Biofilm prevention
Marinobacter hydrocarbonoclasticus
Biofilm formation %
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Control
15000
7500
3750
1880
940
470
234
120
BMX-11 concentration (ppm)

FIG. 22

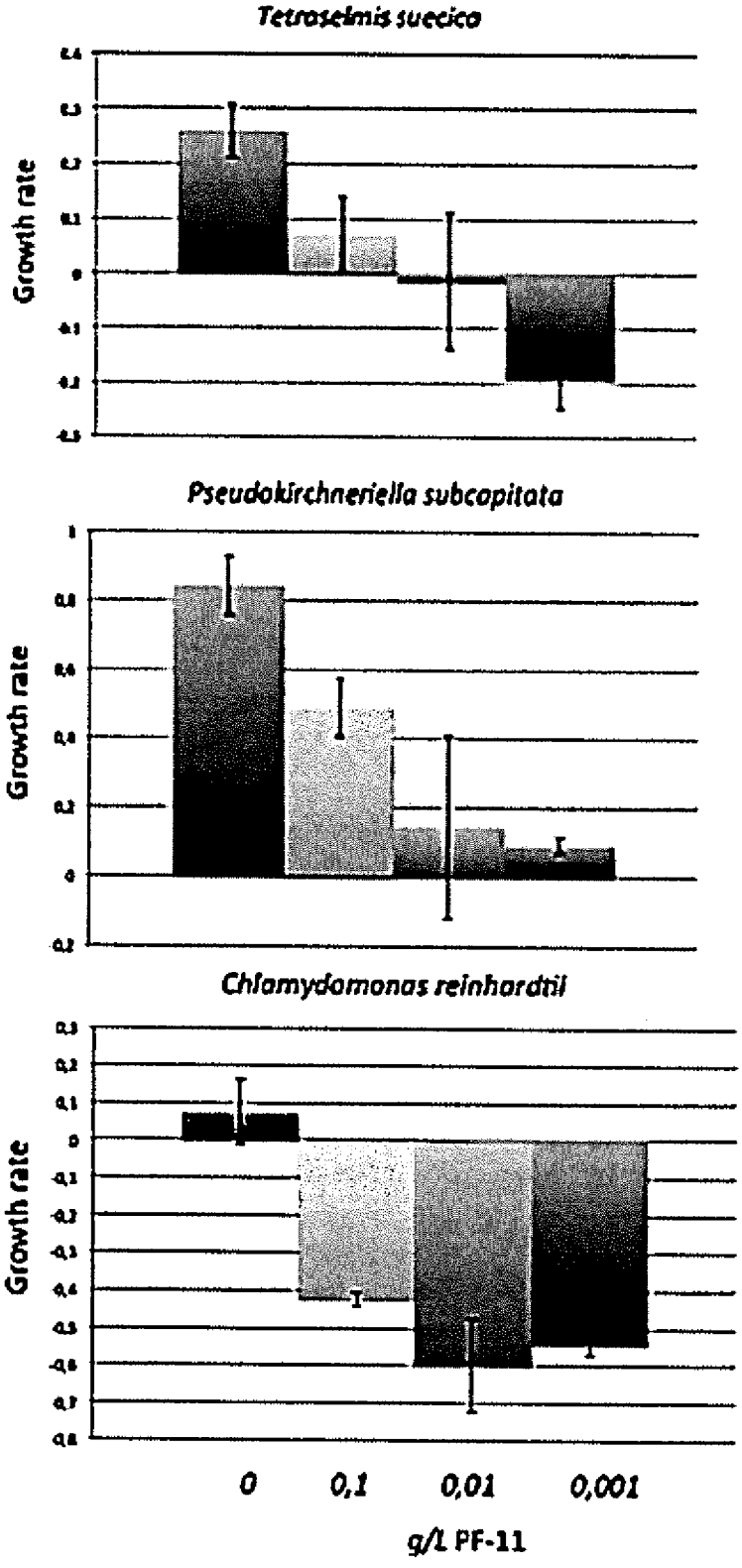
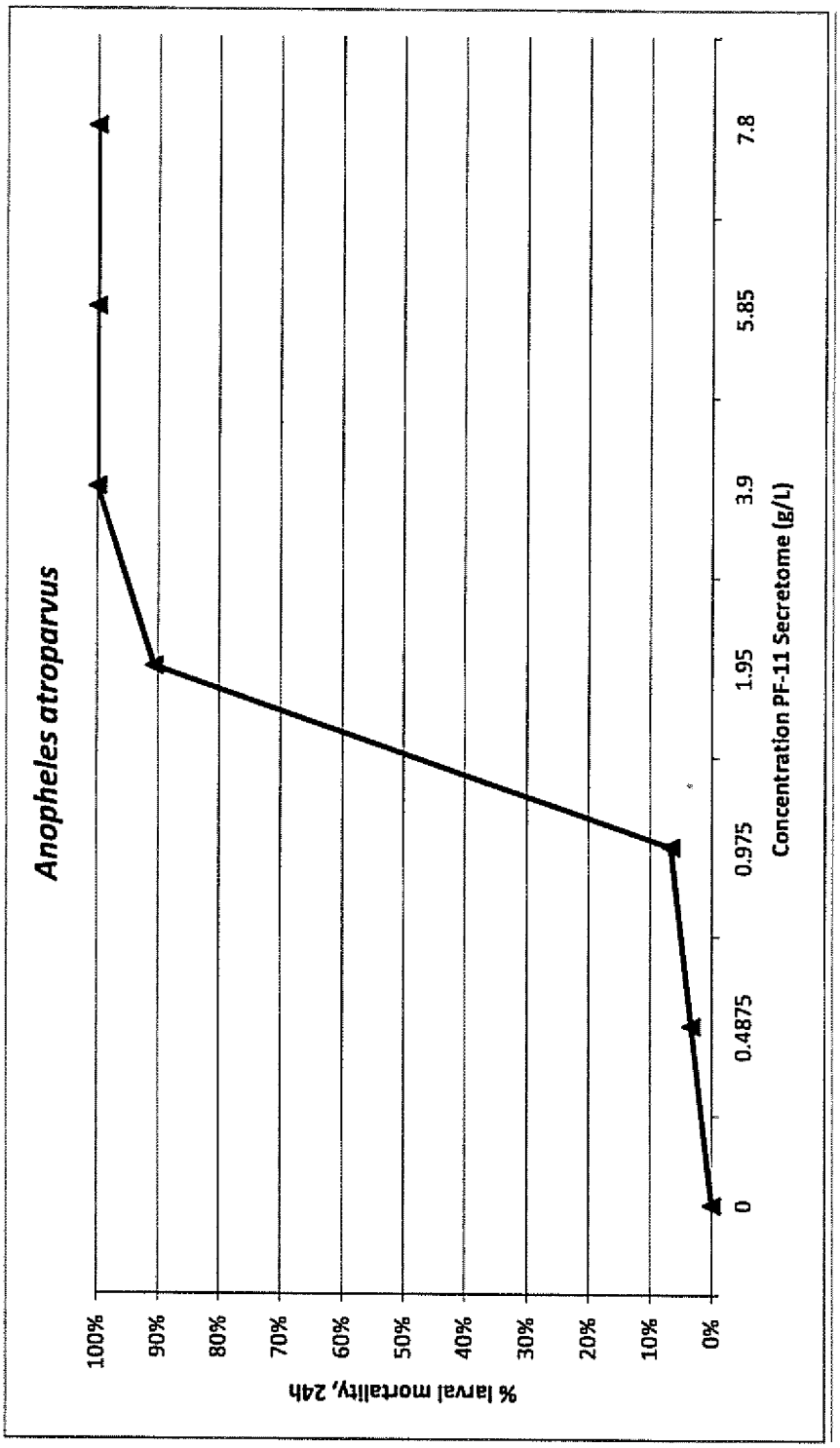

Tetraselmis suecica
Growth rate
Pseudokirchneriella subcopitata
Growth rate
Chlamydomonas reinhardtii
Growth rate
0
0,1
0,01
0,001
g/l PF-11

FIG. 23


Anopheles atroparvus
% larval mortality, 24h
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
0.4875
0.975
1.95
3.9
5.85
7.8
Concentration PF-11 Secretome (g/L)

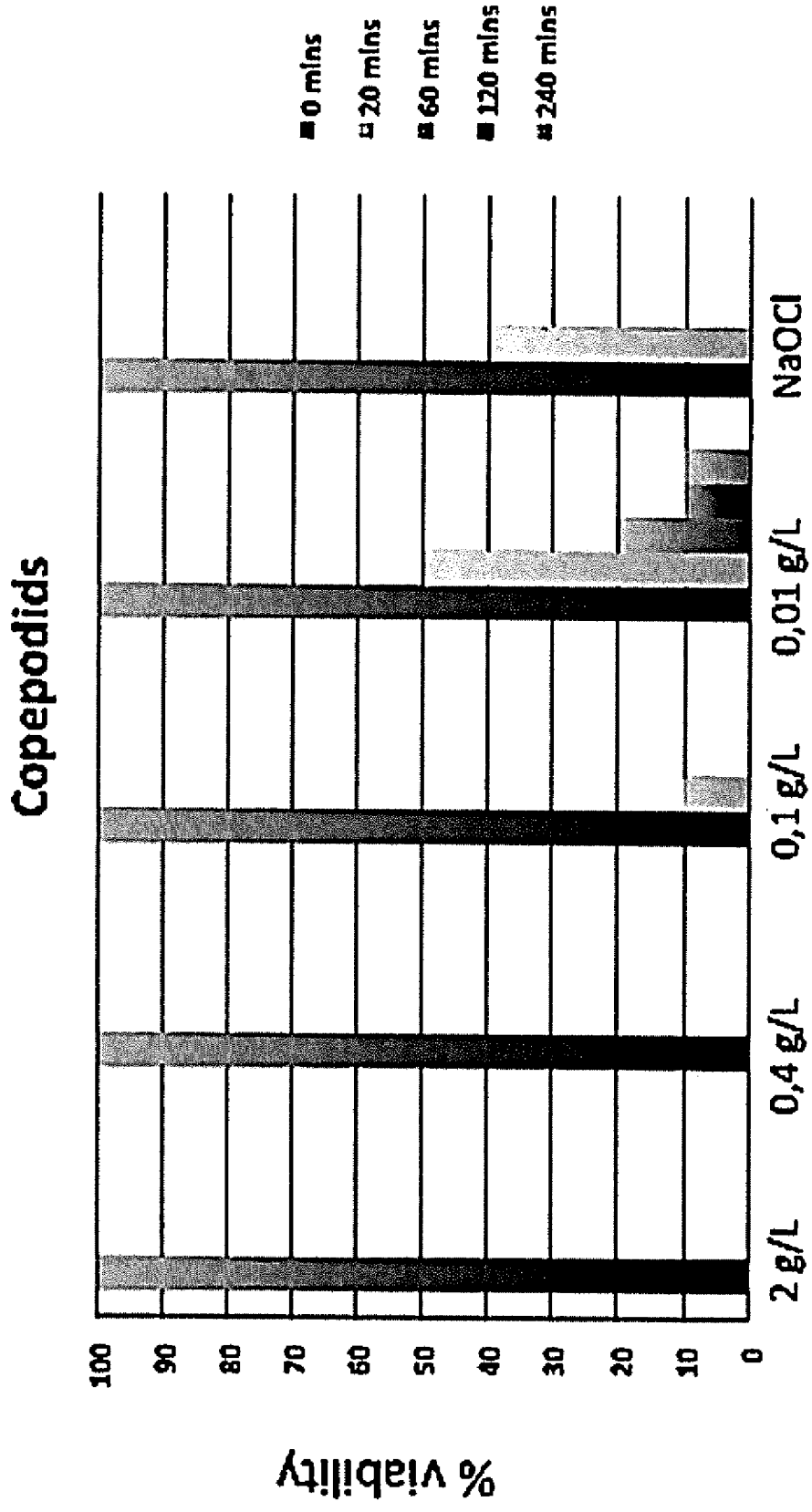

Copepodids
% viability
100
90
80
70
60
50
40
30
20
10
0
2 g/L
0,4 g/L
0,1 g/L
0,01 g/L
NaOCl
0 mins
20 mins
60 mins
120 mins
240 mins

FIG. 24

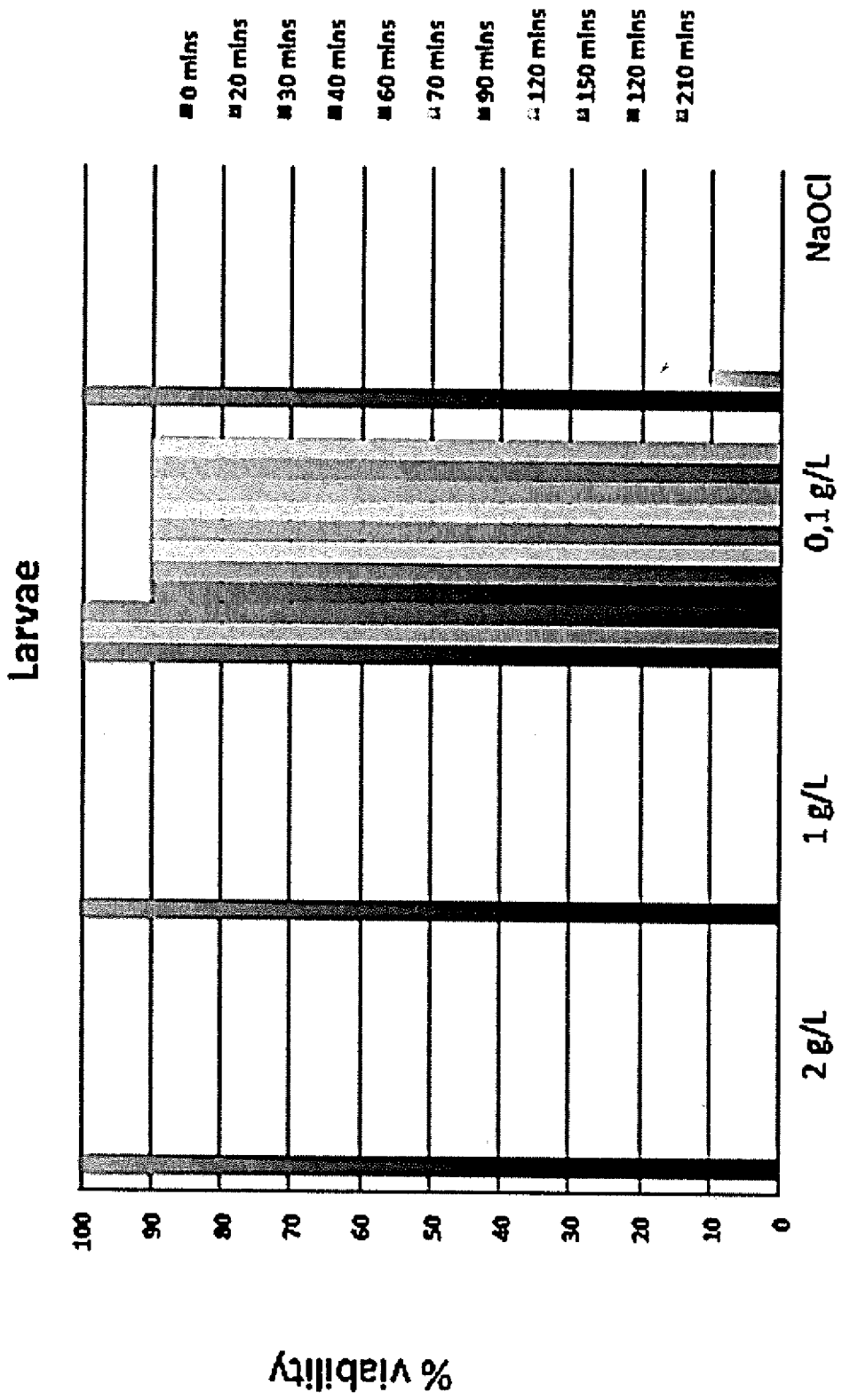

Larvae
% viability
100
90
80
70
60
50
40
30
20
10
0
0 mins
20 mins
30 mins
40 mins
60 mins
70 mins
90 mins
120 mins
150 mins
120 mins
210 mins
2 g/L
1 g/L
0,1 g/L
NaOCl

FIG. 25