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(12)(KR)
(B1)(51) 。 Int. Cl. ⁶
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2002 02 05(21) 10 - 1998 - 0049095
(22) 1998 11 16(65) 2000 - 0032593
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(73) 1 600

(72) 21 103 302
3 306
1 201 1109
1 805
3 123 - 1402

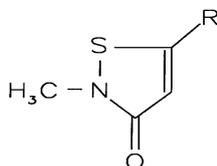
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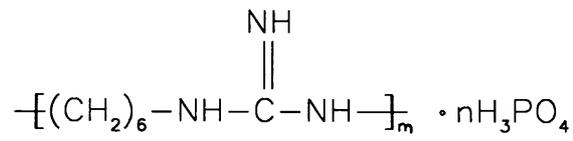
(54)

, 1 3- , 2 ,

[1]



[2]



1 R , 2 m 4 7 , n 1 14 .

3-

olysaccharides)
가 .

(P

(Fouling)

(Biofilm)

(Microbiologically Induced Corrosion)

(Cellulase)

(Algae)

(Algae)

가
(Algal Fouling)

(Clogging)

가

가

(Polysaccharides)

가

3- , 4

3,761,488 , 4,105,431 , 4,279,

762

3-

가

89 - 20381

가

5 -

- 2 -

- 4 -

- 3 -

2 -

- 4 -

- 3 -

3:1

4,379,137

4

3 -

97 - 80170

4

3 -

97 - 46517

3 -

4

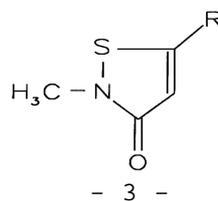
가

가

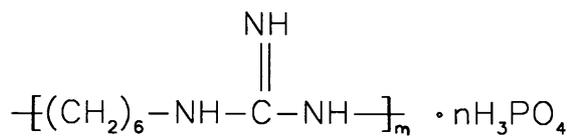
1 3 -

2

[1]



[2]



1 R , 2 m 4 7 , n 1 14 .

/ 1 3- 2 R 가 (Hydrogen) 2- -4-
 -3- , R 가 (Chlorine) 5- -2- -4- -3-
 2- -4- -3- 5- -2- -4- -3- 1:20 20:1
 가 3- 1:20 20:1

3- 1:1 1:65 가 , 1:1
 1:4 3- 가

3- 가 3-

2 가 , ,

5 1000ppm

가 , , , , , 가
 가 , , , , , 가
 가 , , , , , 가

[1 - 6]

8 (Enterobacter aerogens ATCC 13048, Escherichia coli ATCC 11229, Micrococcus luteus ATCC 9341, Pseudomonas aeruginosa ATCC 15442, Klebsiella pneumoniae ATCC 1560, Staphylococcus epidermis ATCC 155, Staphylococcus aureus ATCC 6538, Bacillus subtilis ATCC 6984 8) 3 -

(Tryptic Soy Broth: Difco)

2 (Two fold dilution method)

가 30

3 , 가 (MIC)

Kull, F.C. et al. (Appl. Microbiol. 9 : 538 544 (1961))

QA/Qa QB/Qb 1

1

$$(SI) = (QA/Qa) + (QB/Qb)$$

Qa Qb A B MIC (ppm) ,QA QB A B
MIC (ppm)

[1] ()

	Qa	Qb	QA	QB	QA/Qa	QB/Qb	SI
1	18.8	312.5	9.4	9.8	0.5	0.03	0.53
2	18.8	312.5	9.4	19.5	0.5	0.06	0.56
3	18.8	312.5	9.4	39.1	0.5	0.13	0.63
4	18.8	312.5	9.4	78.1	0.5	0.25	0.75
5	18.8	312.5	9.4	156.3	0.5	0.50	1.0
6	18.8	312.5	2.4	156.3	0.13	0.50	0.63

Qa : 3 - MIC (ppm)

Qb : MIC (ppm)

QA : 3 - MIC (ppm)

QB : MIC (ppm)

1 , 3 - 1/2 , 9.8p
pm (1, SI=0.53)
1/2 , 3 - 2.4ppm (6, SI=0.63)
가 , 가
3 -
1:1 1:4 가 (SI: 0.53 0.63)

[1 1]

7 % 25 % 3 - MIC , 104 CFU/Mℓ . MIC 15 %) 96 30 48 2 MIC , 2 1:4 (3 - 1.5 % 3 - 2 1

MIC (Tryptic Soy Broth, Difco Co.) Enterobacter aerogens ATCC 13048, Staphylococcus aureus ATCC 6538, Staphylococcus epidermis ATCC 155, Bacillus subtilis ATCC 6984, Saccharomyces cerevisiae ATCC 9763, Rhizopus oryzae ATCC 10404, Aspergillus niger ATCC 9642

[2] 1.5 % 3 - MIC (: ppm).

	(1.5%)	()
Enterobacter aerogens ATCC 13048	390	195
Staphylococcus aureus ATCC 6538	195	195
Staphylococcus epidermis ATCC 155,	390	97
Bacillus subtilis ATCC 6984	390	195
Saccharomyces cerevisiae ATCC 9763	390	390
Rhizopus oryzae ATCC 10404	390	195
Aspergillus niger ATCC 9642	195	195

2 , 1.5 % 3 - 3 - 25 %

[2 2]

1 (Killing Time), 1 1.5% 3 - 가 104 CFU/Mℓ , (0), 3 , 24 ,48 72 , 96 가 가 (Blank) . 3 - 1.5 % 3 - 3, 4 .

[3]

		0	3	24	48	72	96
		13000	> 13000	> 13000	> 13000	> 13000	> 13000
	50ppm	13000	210	140	90	40	50
	100ppm	13000	80	170	90	50	30
	200ppm	13000	50	90	50	40	50

[4]1.5 % 3 -

(: CFU/ℓ)

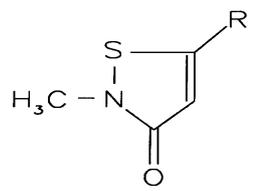
		0	3	24	48	72	96
		13000	> 13000	> 13000	> 13000	> 13000	> 13000
1.5%	50ppm	13000	12000	450	> 10000	> 10000	> 10000
	100ppm	13000	11400	370	6250	> 10000	> 10000
	200ppm	13000	5300	200	2100	> 10000	> 10000

3 4 , 1.5 % 3 - 24 48 , 3 -
 가 3 -
 가 ,

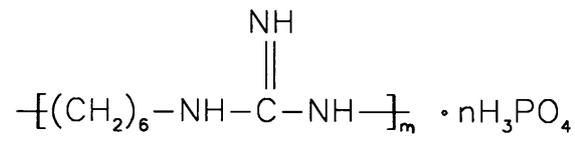
(57)

1. 1 3 - 2 1:1 1:65

[1]



[2]



1 R , 2 m 4 7 , n 1 14 .

2.

1 , 3- R 3- R 3- 1:20 2
 0:1 , 3- 3- 1:1 1
 :4 .

3.

1 , , , , , 가 ,
 가 , , , 가

4.

/ , / 1 ,
 / , .