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(71) , 33301, , 1700, 350 .

(72) , , , , 1104, 602

(74)

:

(54) 3, 4-

3, 4-

가 , ,

A

A

, 4
7-10

(가), , 4 . A , ,
 A , , 4
 A 가 , 7 10 가 , 가
 , , 가 , 가

가 3,4-

1

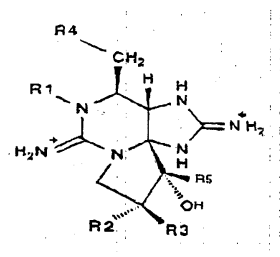
3,4-

(blepharospasm),

(), , , 5

가 가 3 3,4-

[1]



, R₁ R₅ H OH가 ;

R₂ R₃ H OSO₃ ;

R₄ COONH₂, OH, H, COONHSO₃ COOCH₃ . 3 3,4-
 (dinoflagellates), (cyanobacterias)

0.09%

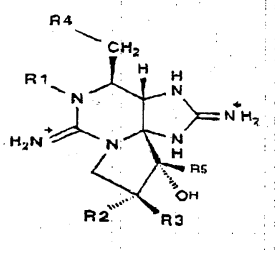
00 800 μ l 1.5 pH4 2 3 3,4- M \emptyset 4 1
 pH4 10mM M \emptyset 40 10mM()
 1 (Saxitoxin)
 2(Gonyautoxin 2)
 3(Gonyautoxin 3)
 4(Gonyautoxin 4)
 Gonyautoxin 5) 5(
 (neoSaxitoxin)
 1(Gonyautoxin 1)
 (DecarbamoylSaxitoxin)

[1]

3 3,4-

	R ₁	R ₂	R ₃	R ₄	R ₅
	H	H	H	COONH ₂	OH
	OH	H	H	COONH ₂	OH
	OH	H	H	OH	OH
1	OH	H	OSO ₃	COONH ₂	OH
2	H	H	OSO ₃	COONH ₂	OH
3	H	OSO ₃	H	COONH ₂	OH
4	OH	OSO ₃	H	COONH ₂	OH
5	H	H	H	COONHso ₃	OH

3 3,4- 2, 1, 3,
 4, 5, 3, 2
 2 3, 2 3 3,4-
 A 가 3 3,4- (blepharospasm),
 A 가 (blepharospasm),
 () ()



, R₁ R₅ H OH가 ;

R₂ R₃ H OSO₃ ;

R₄ COONH₂, OH, H, COONHSO₃ COOCH₃ .

2.

1 , 2, 3,

3.

1 , 4, 1, 5, 3, 2

4.

1 , , - , 3, 2

5.

1 , A 가 가

6.

1 ,

7.

1 , 0.09%

8.

1 Mℓ 20 40

9.

8 Mℓ 40

10.

1 ,

11.

1 ,

12.

11 , Mℓ 20 40

13.

11 , Mℓ 40

14.

11 ,

- 11 15. , .
- 11 16. , 2, 3, .
- 11 17. , 4, 1, 5, 3, 2
- 11 18. , , , - , 3, 2
- 11 19. , A 가 가 .
- 1 20. , .
- 20 21. , 2, 3, .
- 20 22. , 4, 1, 5, 3, 2
- 20 23. , , , - , 3, 2
- 20 24. , A 가 가 .
- 20 25. , 100 800 μ l .
- 20 26. , 1Ml .
- 20 27. , 1 1
- 20 28. , Ml 40 .
- 20 29. , Ml 20 40 .
- 20 30. , .
- 20 31. , .

- 31 32. , .
- 1 33. .
- 33 34. , 2, 3, .
- 33 35. , 4, 1, 5, 3, 2 .
- 33 36. , , , - , 3, 2 .
- 33 37. , A 가 가 .
- 33 38. , 1 Mℓ 20 40 .
- 33 39. , .
- 33 40. , 1 Mℓ 20 40 .
- 33 41. , 1 Mℓ 40 .
- 33 42. , 1 1 .
- 42 43. , 1Mℓ .
- 42 44. , 100 800μℓ .
- 33 45. , .
- 33 46. , 0.09% .
- 33 47. , .

1

