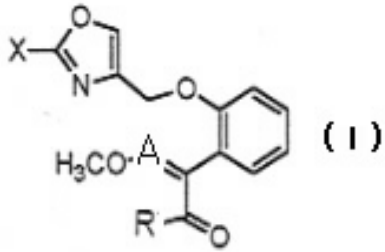


가
가 () , ,



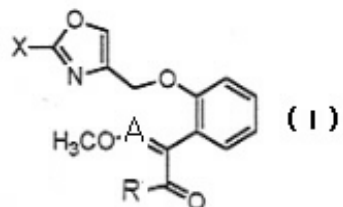
X , , ;
A ; ,
R .
가
lasticidin-S), (*Alternaria*) D(polyoxin D) , -S(b
가
, (benzimidazole) (*Verticillium*), (*Pyreno
phora*), (*Pyricularia*) 가
가
, (*Ustilago maydis*) (carboxin, Vitavax),
, 가 (kasugamycin) 가
(座位)
가 (*Cladosporium cucumerinum*) 6- (6-azauracil) 가
, (triarimol)
(triforine) (denmart) 가 (benomyl)
- (thiophanamate-methyl, Topsin-M) , (thiabendazole) , (c
arbondazim) (furidazole)
) 가 , 1
가
, (propioconazole, Tilt • Desmel • CGA 64250, 1-[2-(2,4-dichlorop
henyl)-4-propyl-1,3-dioxolan-2-ylmethyl]-1H-1,2,4-triazole), (etaconazole, CGA 64251 • Vang
ard • Sonax, 1-[2-(2',4'-dichlorophenyl)-4-ethyl-1,3-dioxolan-2-ylmethyl]-1H-1,2,4-triazole),
(flusilazol, Newstar • DPX-H 6573) (Triazole) (erogosterol)
가 , 가
가 가 , 가
가 가
가
가
, (Strobiliurin)
, 가

가

가

가

()



X , , ;

A ; ,
R , R

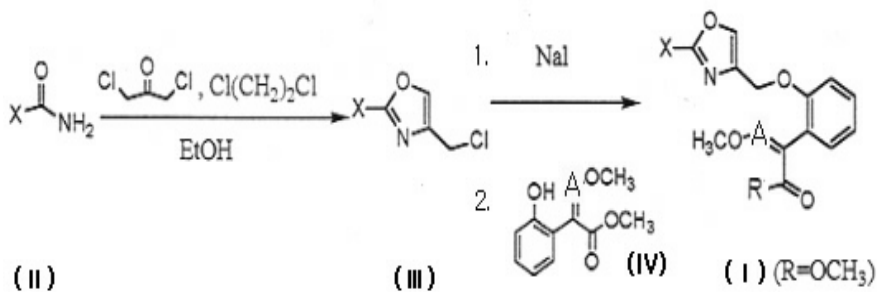
2- (2- (2- (2- (R))-)-)-)-3-
(I) (, R = NHCH₃)

1 : () ()

80 48

가

2 : () (IV)(A=N) (IV)(A=C) 2- (2- (2- ()-)-)-
DMF K₂CO₃ () (, R = OCH₃) : ,

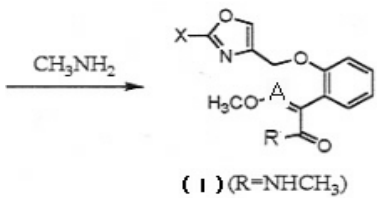
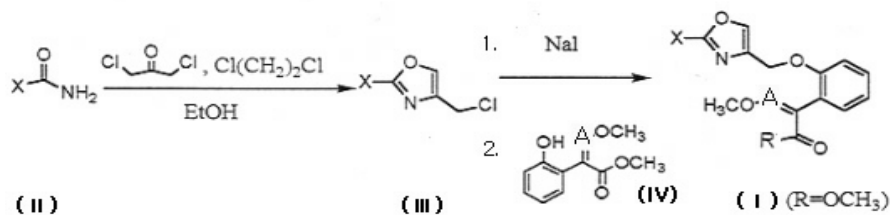


X , , ;

A ; ,
R

() (, R = OCH₃)

() (, R = NHCH₃)



X, A, R
 () , X , A R 1 , 3- -2-[2-(2- -4- -)]-

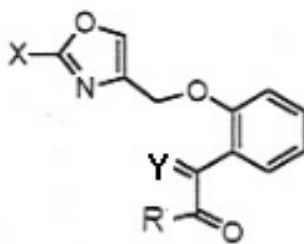
a), (*Rhizoctonia solani* AG-1), (*Pyricularia oryzae* Cavar),
 (*Phytophthora infestans*), (*Botrytis cinerea* KCl),
 (*Erysiphe graminis* f.sp. *hordei*), (*Puccinia recondita*),

, CCl₃F · CCl₂F₂ (flowable),
 , DL (driftless dust), (flow dust, FD),

가
 1 :
 1-1 : 3- -2- (2.50g, 14.5mmol) (50mL) , 1,3- (2.03g, 16.0mmol)
 가 80 48 (2.1g, 68%). 3-
 -2-
 1-2 : 3- -2-[2-(2- -4-)]-]- (194mg, 1.00mmol) (2mL)
 1-1 3- -2- (165mg, 1.10mmol), (166mg, 1.20mmol) (25
 0mg, 1.20mmol) 가 , 50 60 , 가 (5mL) 3 ,
 =4:1(v/v)) , 3- -2-[2-(2- -4-)]-]-
 (216mg, 54%).
 1-3 : 2-[2-(4-) -4-])- (194mg, 0.47mmol) (2mL)
 3- -2-(4-) (165mg, 1.10mmol), (166mg, 1.10mmol) (251
 mg, 1.20mmol) 가 , 가 (5mL) 3 ,

(225mg, 2-[2-(4-) -4-])- (, : =4:1(v/v))
61 %). 1 .

[1]



(, R)

	X	Y	¹ H NMR(CDCl ₃ ,)
1	Ph	C-OMe	3.68(s, 3H), 3.82(s, 2H), 6.97-7.05(m, 2H), 7.22-7.30(m, 3H), 7.43-7.52(m, 4H), 7.64-7.65(m, 1H), 8.00-8.06(m, 2H)
2	Ph	N-OMe	3.70(s, 3H), 4.03(s, 3H), 5.08(s, 2H), 7.00-7.07(m, 2H), 7.36-7.48(m, 4H), 7.71(dd, J=8.1, 2.0Hz, 1H), 7.81(s, 1H), 8.02-8.07(m, 2H)
3	CH ₃ OC ₆ H ₄	N-OMe	3.70(s, 3H), 3.88(s, 3H), 4.03(s, 3H), 5.08(s, 2H), 7.00-7.07(m, 3H), 7.34-7.41(m, 2H), 7.57-7.74(m, 3H), 7.81-7.82(m, 1H)
4	3,4-Cl ₂ C ₆ H ₄	N-OMe	3.70(s, 3H), 4.03(s, 3H), 5.07(s, 2H), 7.00-7.04(m, 2H), 7.36-7.44(m, 1H), 7.54(d, J=8.3Hz, 1H), 7.69-7.73(m, 1H), 7.84-7.89(m, 2H), 8.10(d, J=2.0Hz, 1H)
5	3,4-Cl ₂ C ₆ H ₄	C-OMe	3.68(s, 3H), 3.83(s, 3H), 5.09(s, 2H), 6.98-7.05(m, 2H), 7.21-7.35(m, 1H), 7.52-7.67(m, 2H), 7.83-7.92(m, 1H), 8.13(d, J=2.0Hz, 1H)
6	4-ClC ₆ H ₄	C-OMe	3.68(s, 3H), 3.83(s, 3H), 5.09(s, 2H), 6.98-7.04(m, 2H), 7.21-7.38(m, 2H), 7.41-7.51(m, 3H), 7.65(s, 1H), 7.96(d, J=8.0Hz, 2H)
7	4-CH ₃ C ₆ H ₄	C-OMe	2.34(s, 3H), 3.68(s, 3H), 3.83(s, 3H), 5.09(s, 2H), 7.00-7.04(m, 2H), 7.21-7.38(m, 2H), 7.42-7.52(m, 3H), 7.65(s, 1H), 7.96(d, J=8.0Hz, 2H)
8	4-CH ₃ C ₆ H ₄	N-OMe	2.40(s, 3H), 3.69(s, 3H), 4.03(s, 3H), 5.07(s, 2H), 6.99-7.06(m, 2H), 7.24-7.29(m, 2H), 7.35-7.40(m, 1H), 7.69-7.74(m, 1H), 7.77(s, 1H), 7.92(d, J=8.4Hz, 2H)

2 :

가 가

10%

, -20(tween-20) 250ppm 가 , 50Mℓ
 24 , 2
2-1 :
 (rice blast, RCB) (*Pyricularia oryzae Cavara*)
 (20g, 10g, 15g, 1) , 26 2
 (rubber polishman)
 (25 28) 48 (106 /Mℓ) (3 4)
 ±2 5 24 , 90% 가 26
 3 4
2-2 :
 (rice sheath blight, RSB) : , 1
 (PDA) 3 (*Rhizoctonia solani AG-1*)
 (28±1) , 2 3 가 (: 5 cm)
 80% 5
 3
2-3 :
 (cucumber gray mould, CGM) (*Botrytis ciner*
ea KCl) : , (PDA) 25 , 15
 10Mℓ 가 , 가
 가 10 /Mℓ가 1
2-4 :
 (Tomato Late Blight, TLB) (*Phytophthora infestans*)
 (V-8 200Mℓ, CaCO₃ 4.5 g, 15g, 800Mℓ) : , V-8
 8 14 , 4 20 16
 , 4 20 1 1 10 /Mℓ
 80% 4 , 1 2 (%) 20 ,
2-5 :
 (Wheat Leaf Rust, WLR) (*Puccinia recondita*)
 : , , 1 (: 6.5cm)
 15 () , 7 1
 1 20 , 가 70% 20
 10 10
2-6 : 가
 가 (barley powdery mildew, BPM) (*Er*
ysiphe graminis f.sp. hordei)
 : ,
 1 (: 6.5cm) 15 (1) (25±5) 7
 1 가 50% 22
 24 , 7
 2-1 2-6 1 가(control value)
 2 :

$$\text{방제가}(\text{control value, \%}) = \left(1 - \frac{\text{처리구의 병반면적율}}{\text{대조구의 병반면적율}} \right) \times 100$$

가 0% ;
 100% ;
 70% 가

[2]

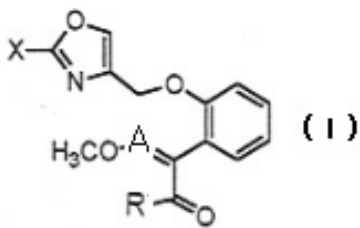
	(ppm)	가(%)					
							가
1	100	100	57	42	40	100	100
5	100	100	15	0	0	100	100
6	100	96	28	21	99	100	100
7	100	100	58	68	65	100	100

2 , 1 , 5 , 6 7 가 가
 % 가 , 50ppm 95% 가 , 10ppm 93% 가 2ppm 250ppm 80% 98 가

가
 (*Rhizoctonia solani* AG-1),
ophthora infestans),
rysiphe graminis f.sp. *hordei*)
 가
 (*Pyricularia oryzae* Cavara),
 (*Botrytis cinerea* KCl),
 (*Puccinia recondita*),
 (*Phyt* (*E*

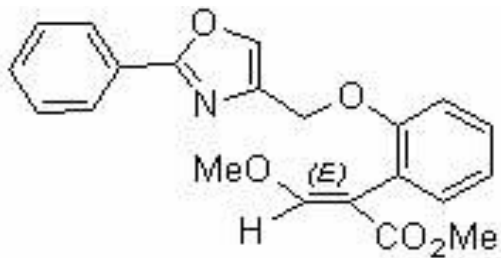
(57)

1. () (oxazole) :



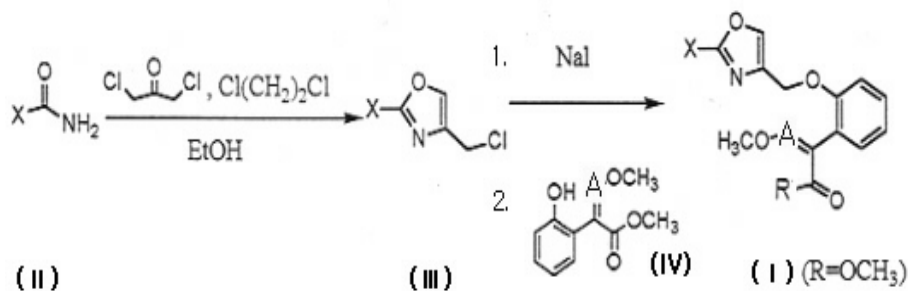
X , ;
 A ;
 R ;

2. 3- -2-[2-(2- -4- -)-]- :



3.

() ()
) ; , ()
 () ()
)-3- (IV)(A=N) (IV)(A=C) 2- -2- , 2-(2-)-
 : ()



X , , , ;
 A ; ,
 R .

4.

3 ()

5.

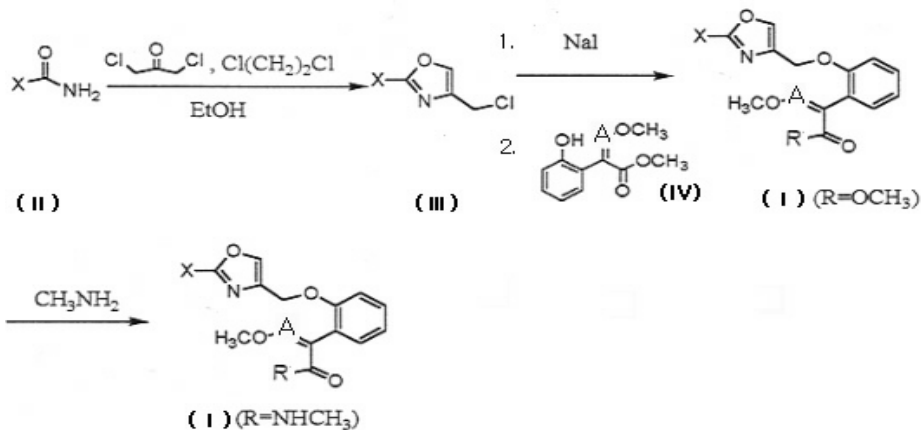
3 ()
 70 90
 40 60

6.

3 ()
 DMF K₂CO₃ 40 60

7.

() () ()
) ; , ()
 () () , 2-(2-)-
)-3- (IV)(A=N) (IV)(A=C) 2- -2- ()-
 () (IV)(A=N) (I) (, R=OCH₃) (I) (, R=NHCH₃)
 :



X , , , ;

A ; ,

R 8.

1 9.

- 8 ,
- (*Pyricularia oryzae Cavara*),
 - (*Rhizoctonia solani AG-1*),
 - (*Botrytis cinerea KCl*),
 - (*Phytophthora infestans*),
 - (*Puccinia recondita*),
 - (*Erysiphe graminis f.sp. hordei*)

10.

2 ,

11.

- 10 ,
- (*Pyricularia oryzae Cavara*),
 - (*Rhizoctonia solani AG-1*),
 - (*Botrytis cinerea KCl*),
 - (*Phytophthora infestans*),
 - (*Puccinia recondita*),
 - (*Erysiphe graminis f.sp. hordei*)