

(19) (KR)
(12) (A)

(51) 。 Int. Cl.⁷
C09B 1/56 (11) 10-2005-0006132
C09B 1/58 (43) 2005 01 15
C09B 1/54

(21)	10-2004-7014873		
(22)	2004 09 21		
	2004 09 21		
(86)	PCT/EP2003/002615	(87)	WO 2003/080735
(86)	2003 03 13	(87)	2003 10 02

(30) 02405225.0 2002 03 22 EP(EP)

(71) - 4057 141

(72) - 8047 - 15

79539 6

- 4058 6

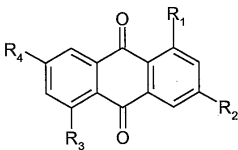
(74)

:

(54)

I ,
.

I



I ,

R₁ R₃ -NHR₅ , -NHSO₂R₅ , -NHCOR₅ , -OR₆ -SR₇ ,

R_2 R_4 -OR₆ -SR₇ ,

, R_1 R_4 가 -SR₇ ,

R_5 , , ,
-NH-, -NR₈ -, -CONH- -CONR₈ - , $(C_n H_{2n} X)_m -H$, , X -O-, -S-, -SO₂ -,
10 , , n 2 6 , m 1

R_6 ,

R_7 , , ,
H-, -NR₈ -, -CONH- -CONR₈ - , $(C_n H_{2n} X)_m -H$, , X -O-, -S-, -SO₂ -, -N .

, , , ,

, (mass-coloured)

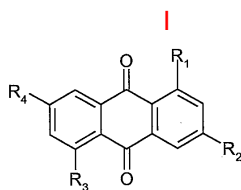
, , , 5 367 039
() 1,4,5,8-

, .

, 가 ,

, , 가 .

, | .



| ,

R_1 R_3 -NHR₅ , -NHSO₂ R₅ , -NHCOR₅ , -OR₆ -SR₇ ,

R_2 R_4 -OR₆ -SR₇ ,

, R_1 R_4 가 -SR₇ ,

R_5 , , ,
-NH-, -NR₈ -, -CONH- -CONR₈ - , $(C_n H_{2n} X)_m -H$, , X -O-, -S-, -SO₂ -,
10 , , n 2 6 , m 1

R₆,
R₇, , -(C_nH_{2n}X)_m-H, X -O-, -S-, -SO₂ -, -N
H-, -NR₈ -, -CONH- -CONR₈ -, R₈.
R₁ R₃, R₁ R₃.
, R₂ R₄,.

.,
., n-, , n-, , 2 -, 3 -, n-, ,
, n-, n-, n-, , n-n-.
., 2-, 2-, 4-, 2-, 2-
, 4-, 2-, 2-, 4-.
C₄, R₅ C₁-C₄, R₈ C₁-C₄가 5 24, 6 14, C₁-
NH-CO-R, C₁-C₄, C₁-C₄, C₁-C₄
., 2,6-, 2-, 3-, 2-, 4-, 2-, 4-
, .
R₅가 6 30, 7 12, C₁-C₄
C₁-C₄, NH-CO-R, R₅-C₁-C₄.
., 2-, 4-.
R₆ R₇ 4 5 O, S N 2
. , , , , , , ,
., I, R₁ R₃ -NHR₅ -SR₇.
R₁ R₃ -NHR₅ -SR₇, R₅ R₇ I
.
R₁ R₃ -NHR₅ -SR₇, R₅가 , 2-, R₇ I
.
I R₂ R₄ -SR₇.
I, R₂ R₄ -SR₇, R₇,
2-.
la Ic.

[illegible]

(CCD) 400 700nm 가 , (LCD)

2 182 165 , , , 가 , , , , LCD , , 654 711 , , , [: 5 624 467 , Displays 14/2, 115 (1993) WO 98/4 5756] . (LCD)

1:

A. 1,5- (2-)-3,7-

1,3,5,7- 90g, 2- 142.3g, 18.6g (I) 0.
52g , 3 130 (RT) ,
24g(65%)

B. 1,5- (2-)-3,7- ()-

1,5- (2-)-3,7- 24g (DMF) 100ml
16.3g 가 , 120 가 , 1
100ml 가 , / (1:1)

: 18.6g(68.5%).

2:

A. 1,5- ()-3,7-

1,3,5,7- 20g, 70ml, 9.3g (I) 0.26g
, 2 150 ,

: 16.8g(80%).

B. 1,5- ()-3,7- (2-)-

1,5- ()-3,7- 16.8g 2- 5.6g DMF 50ml
110 가 , DMF 90ml 3 - 8.16g 가 .
2 110 . 500ml 가 .

: 11.4g(70%).

3:

A. 1,5- ()-3,7-

1,3,5,7- 37g, 12.3ml, 17.3g (I) 0.5g
, 7 170 , 2N HCl 1 가
21g(47%)

B. 1,5- ()-3,7- ()-

1,5- ()-3,7- 16.5g DMF 50ml , 120 가 .
50 , DMF 25ml 8.5g 가 . 120 가 .
, 1.5 . 60 , 100ml 가 ,
, / (1:1) ,

: 11.2g(62%).

4: 1,3,5,7- ()-

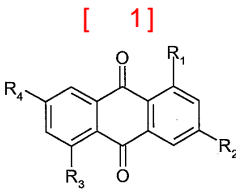
1,3,5,7- 90g 50g 70 DMF 150m
I 5 120 , ,

: 22.6g(73%).

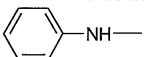
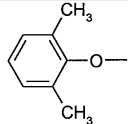
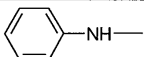
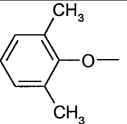
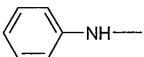
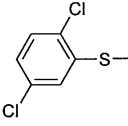
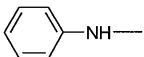
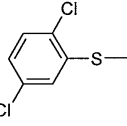
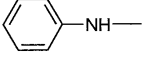
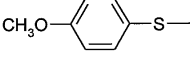
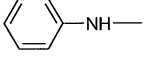
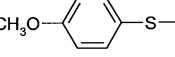
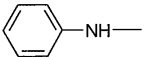
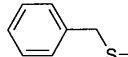
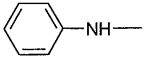
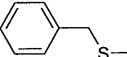
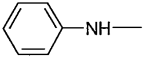
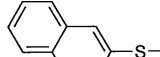
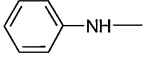
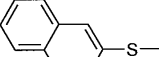
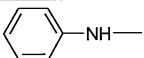
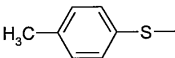
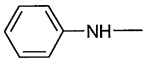
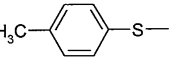
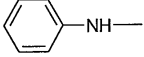
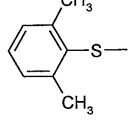
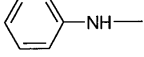
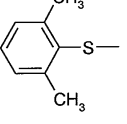
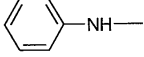
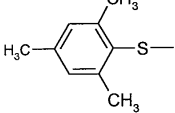
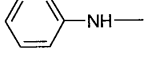
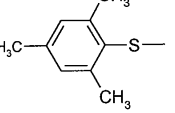
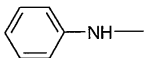
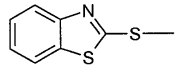
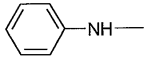
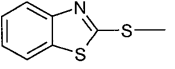
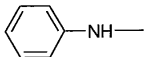
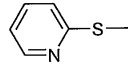
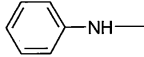
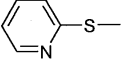
II.

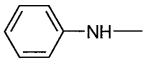
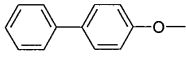
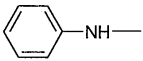
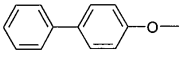
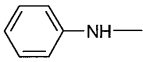
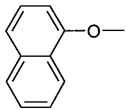
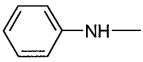
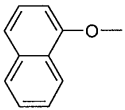
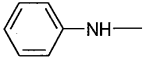
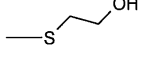
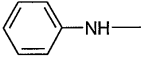
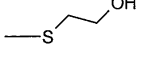
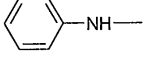
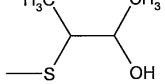
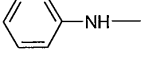
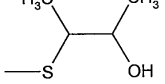
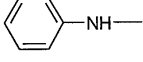
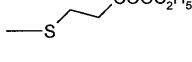
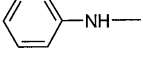
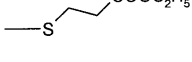
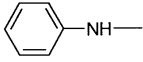
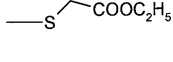
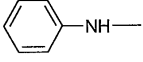
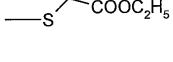
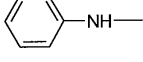
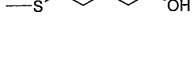
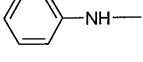
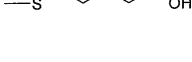
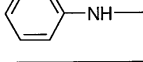
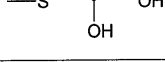
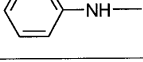
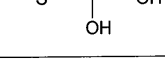
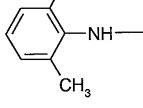
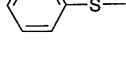
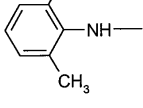
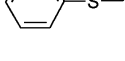
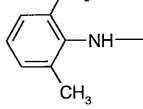
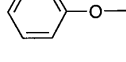
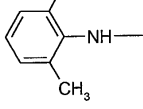
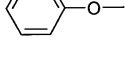
II. 1. (LCD)

83.3g, 1 2.8g. Solsperse 5000 0.28g, Disperbyke ®
161(, n - /1 - -2- 1:6
30% , BYK Chemie) 4.10g 1 - -2- (MPA) 14.62g
100ml Dispermat 23 10 1000revs/min 180 3000r
evs/min . (MPA 35%) 4.01g 가 , 30 30
00revs/min , MPA ,
(Corning type 1737-F) , 1000revs/min , 2
100 5 200 0.4µm .
(1) 1 .



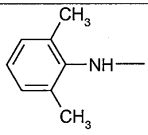
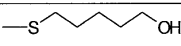
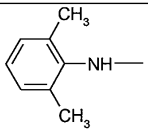
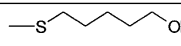
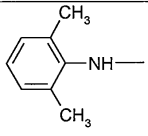
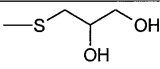
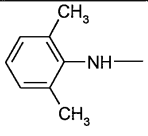
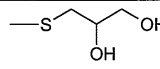
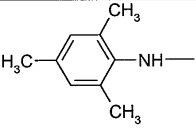
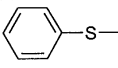
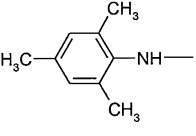
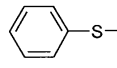
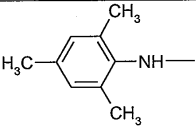
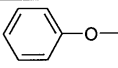
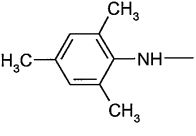
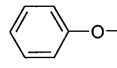
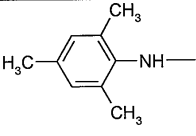
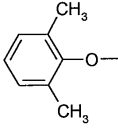
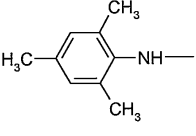
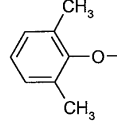
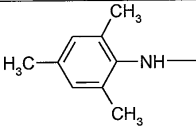
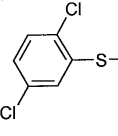
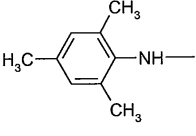
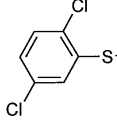
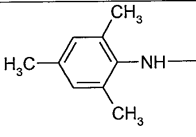
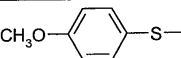
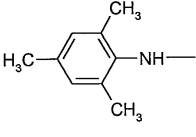
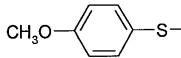
R ₁	R ₂	R ₃	R ₄

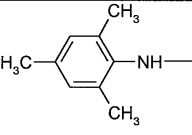
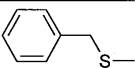
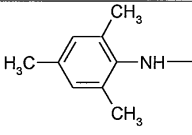
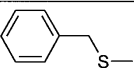
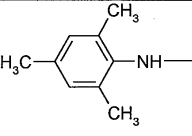
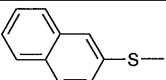
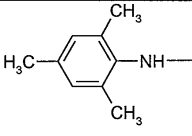
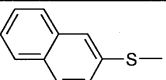
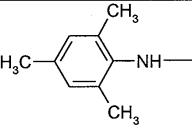
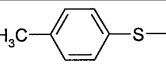
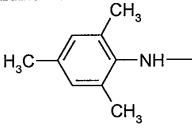
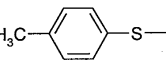
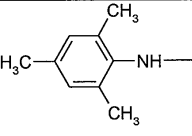
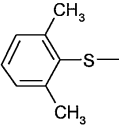
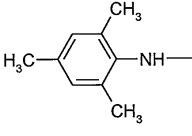
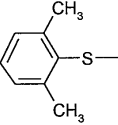
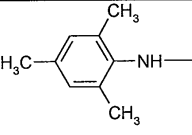
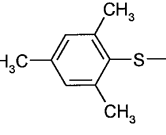
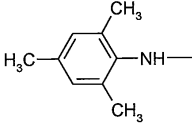
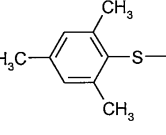
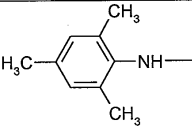
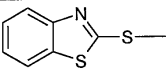
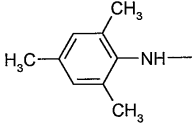
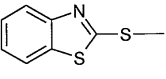
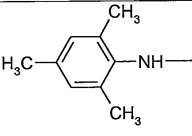
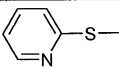
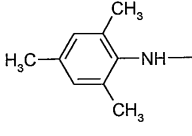
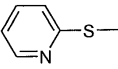
R ₁	R ₂	R ₃	R ₄
			
			
			
			
			
			
			
			
			
			

R ₁	R ₂	R ₃	R ₄
			
			
			
			
			
			
			
			
			
			

R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄
			
			
			
			
			
			
			

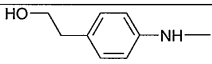
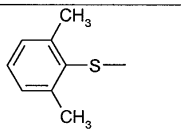
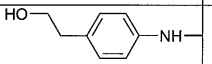
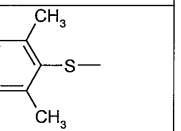
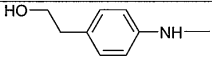
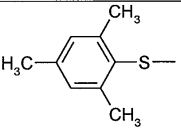
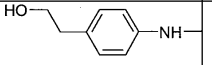
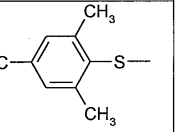
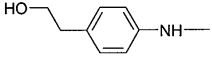
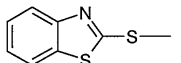
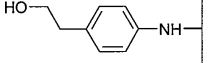
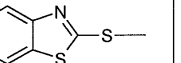
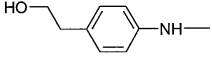
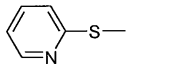
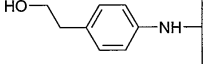
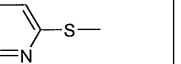
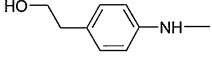
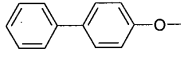
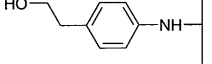
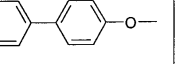
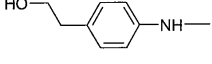
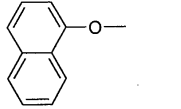
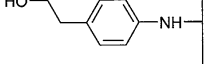
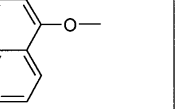
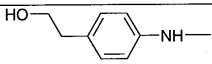
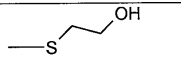
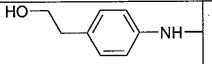
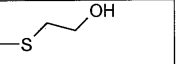
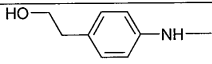
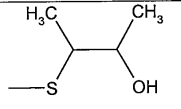
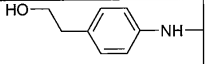
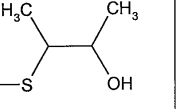
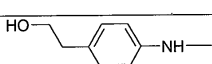
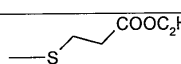
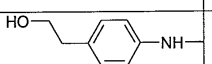
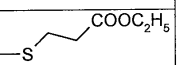
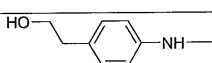
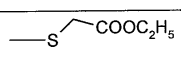
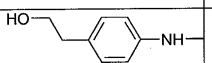
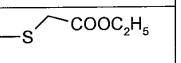
R ₁	R ₂	R ₃	R ₄
			
			
			
			
			
			
			

R ₁	R ₂	R ₃	R ₄

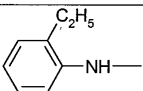
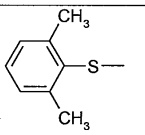
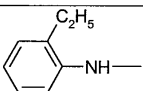
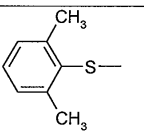
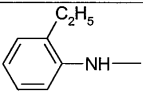
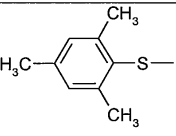
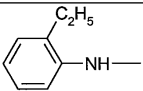
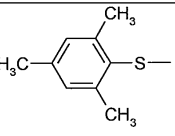
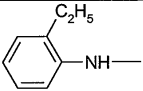
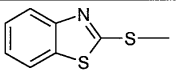
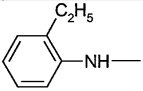
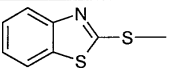
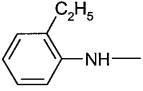
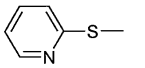
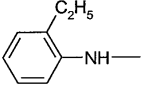
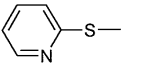
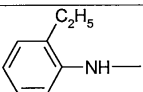
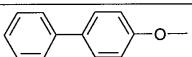
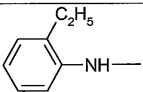
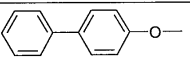
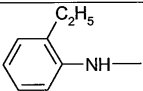
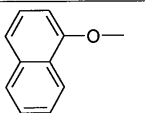
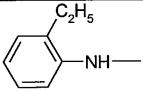
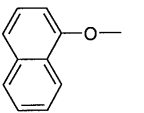
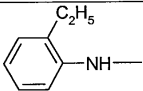
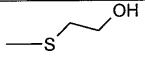
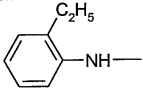
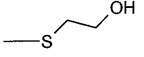
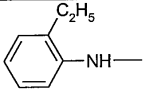
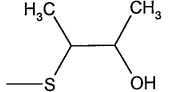
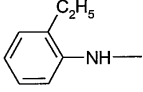
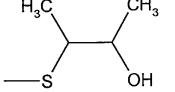
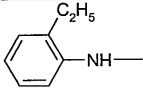
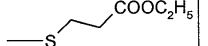
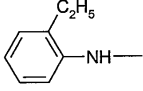
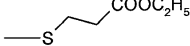
R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄

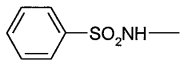
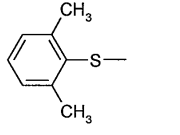
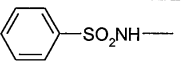
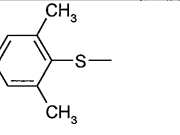
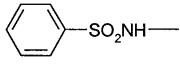
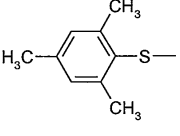
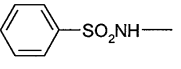
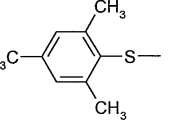
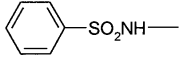
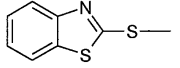
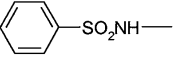
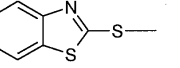
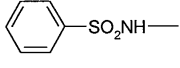
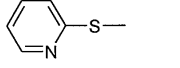
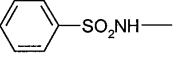
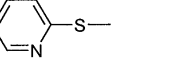
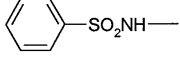
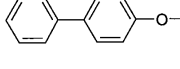
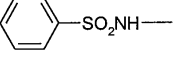
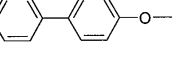
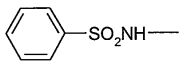
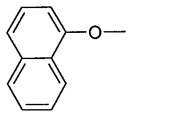
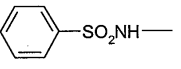
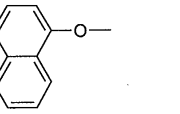
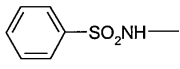
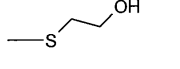
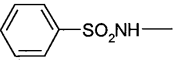
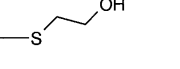
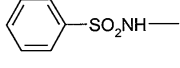
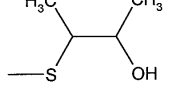
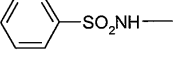
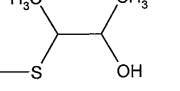
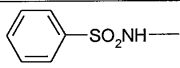
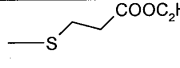
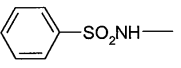
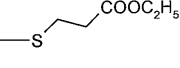
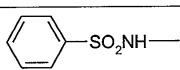
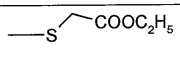
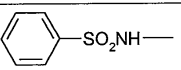
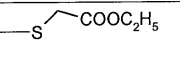
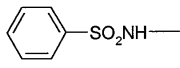
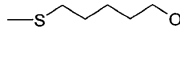
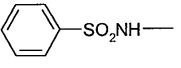
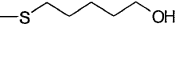
R ₁	R ₂	R ₃	R ₄

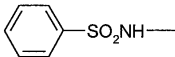
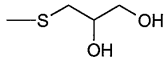
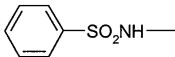
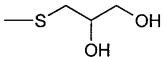
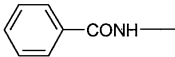
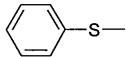
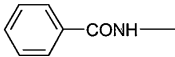
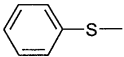
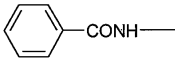
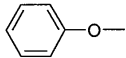
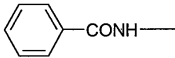
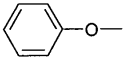
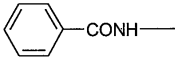
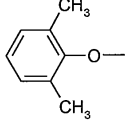
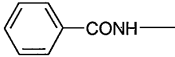
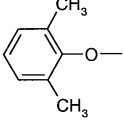
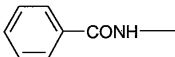
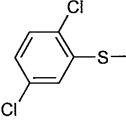
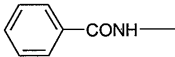
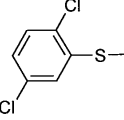
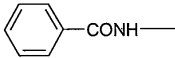
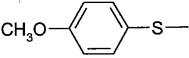
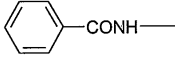
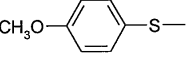
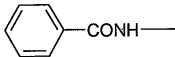
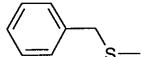
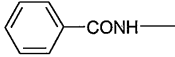
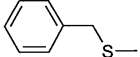
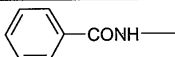
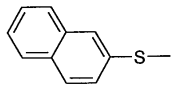
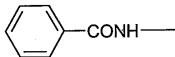
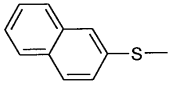
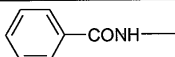
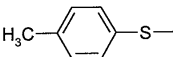
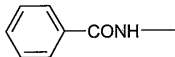
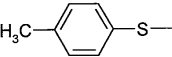
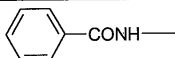
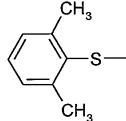
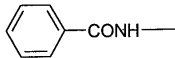
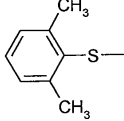
R ₁	R ₂	R ₃	R ₄
			
			
			
			
			
			
			
			
			
			

R ₁	R ₂	R ₃	R ₄

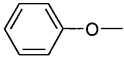
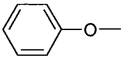
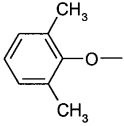
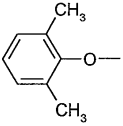
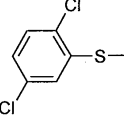
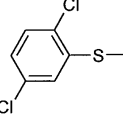
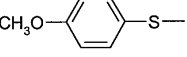
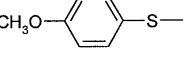
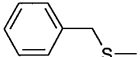
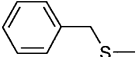
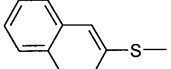
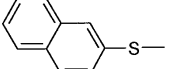
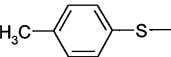
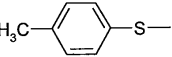
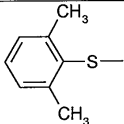
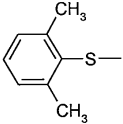
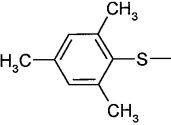
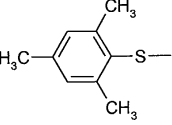
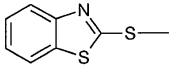
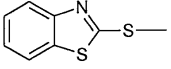
R ₁	R ₂	R ₃	R ₄
			
			
			
			
			
			
			
			
			

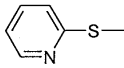
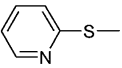
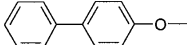
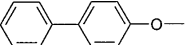
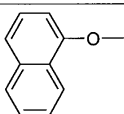
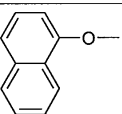
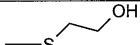
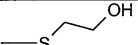
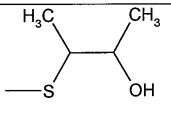
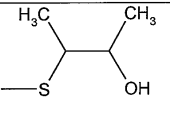
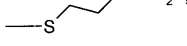
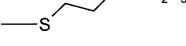
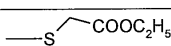
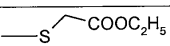
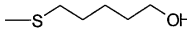
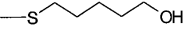
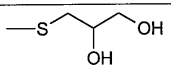
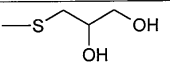
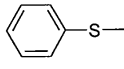
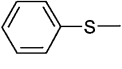
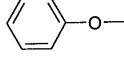
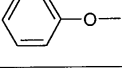
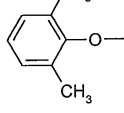
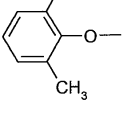
R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄
			
			
			
			
			
			
			
			
			
			
			

R ₁	R ₂	R ₃	R ₄
			
			
			
			
			
			
			
			
			
			

R ₁	R ₂	R ₃	R ₄

R_1	R_2	R_3	R_4
$—NH_2$		$—NH_2$	
$—NH_2$		$—NH_2$	
$—NH_2$		$—NH_2$	
$—NH_2$		$—NH_2$	
$—NH_2$		$—NH_2$	
$—NH_2$		$—NH_2$	
$—NH_2$		$—NH_2$	
$—NH_2$		$—NH_2$	
$—NH_2$		$—NH_2$	
$—NH_2$		$—NH_2$	

R ₁	R ₂	R ₃	R ₄
—NH_2		—NH_2	
—NH_2		—NH_2	
—NH_2		—NH_2	
—NH_2		—NH_2	
—NH_2		—NH_2	
—NH_2		—NH_2	
—NH_2		—NH_2	
—NH_2		—NH_2	
—NH_2		—NH_2	
—NH-CH2-OH		—NH-CH2-OH	
—NH-CH2-OH		—NH-CH2-OH	
—NH-CH2-OH		—NH-CH2-OH	

R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄

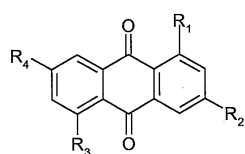
R ₁	R ₂	R ₃	R ₄

(57)

1.

I

I



I

,

R_1 , R_3 , -NHR₅, -NHSO₂R₅, -NHCOR₅, -OR₆, -SR₇,
 R_2 , R_4 , -OR₆, -SR₇,
 , R_1 , R_4 가 -SR₇,
 R_5 , , , , -(C_nH_{2n}X)_m-H, , , X, -O-, -S-, -SO₂-,
 -NH-, -NR₈-, -CONH-, -CONR₈-, , R₈, , n, 2, 6, m, 1
 10,
 R_6 ,
 R_7 , , , -(C_nH_{2n}X)_m-H, , , X, -O-, -S-, -SO₂-, -N
 H-, -NR₈-, -CONH-, -CONR₈-, , R₈.

2.

1, R_1 , R_3 , -NHR₅, -SR₇, R_5 , R_7 , 1 I.

3.

1, R_1 , R_3 , -NHR₅, -SR₇, R_5 , R_7 , I.

4.

3, R_5 가 , 2-, , R_7 , I.

5.

1, 2, R_2 , R_4 가 -SR₇, R_7 , 1 I.

6.

5, R_7 , I.

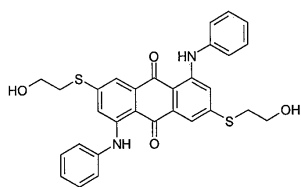
7.

6, R_7 , 2-, I.

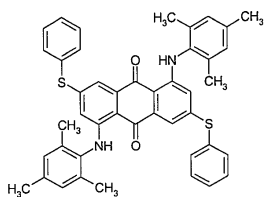
8.

1, la, lc, I.

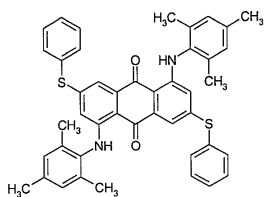
la

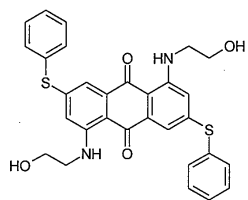


lb



lc





9.

1, 1,3,5,7-
(, R₁, R₂, R₃ R₄ 1 R₂-H R₁-H R₂-H R₄-H R₁-H R₃-H) , 1 I

10.

1 8 I

11.

I ,

12.

NH-, OH- 2 SH- NH, OH SH , , 가 1 I

13.

11 12

14.

1