

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

(51) 。 Int. Cl.7

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C09B 1/54

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10-2005-0006132

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(21) 10-2004-7014873

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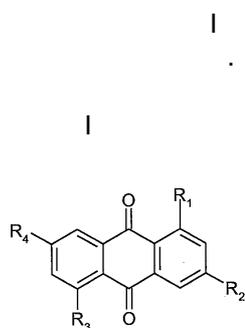
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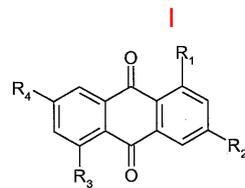
R₁ R₃

-NHR₅, -NHSO₂R₅, -NHCOR₅, -OR₆ -SR₇

R_2 , R_4 , $-OR_6$, $-SR_7$,
 R_1 , R_4 가 $-SR_7$,
 R_5 , $-NH-$, $-NR_8-$, $-CONH-$, $-CONR_8-$, $-(C_n H_{2n} X)_m -H$, X , $-O-$, $-S-$, $-SO_2-$,
 10, n , 2 , 6 , m , 1 ,
 R_6 ,
 R_7 , $H-$, $-NR_8-$, $-CONH-$, $-CONR_8-$, $-(C_n H_{2n} X)_m -H$, X , $-O-$, $-S-$, $-SO_2-$, $-N$

(mass-coloured)

5 367 039
1,4,5,8-



R_1 , R_3 , $-NHR_5$, $-NHSO_2 R_5$, $-NHCOR_5$, $-OR_6$, $-SR_7$,
 R_2 , R_4 , $-OR_6$, $-SR_7$,
 R_1 , R_4 가 $-SR_7$,
 R_5 , $-NH-$, $-NR_8-$, $-CONH-$, $-CONR_8-$, $-(C_n H_{2n} X)_m -H$, X , $-O-$, $-S-$, $-SO_2-$,
 10, n , 2 , 6 , m , 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%).

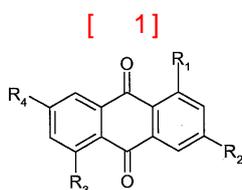
4: 1,3,5,7- ()-

1,3,5,7- 90g 50g 70 DMF 150m
 l 5 120 . , ,
 : 22.6g(73%).

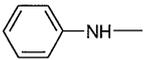
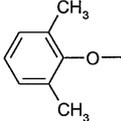
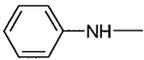
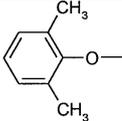
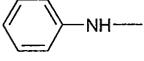
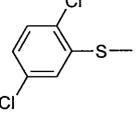
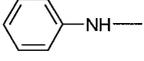
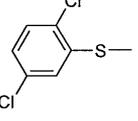
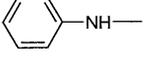
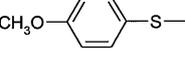
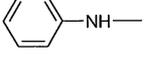
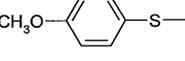
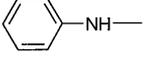
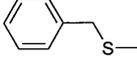
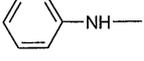
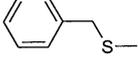
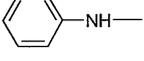
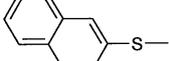
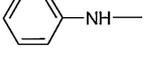
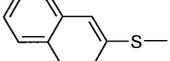
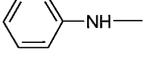
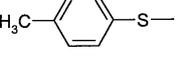
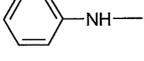
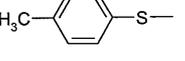
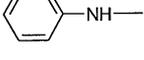
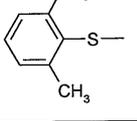
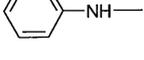
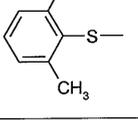
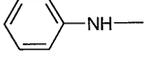
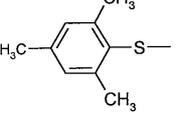
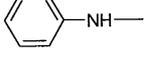
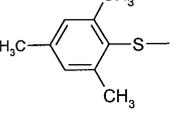
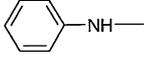
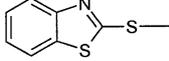
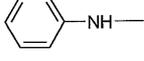
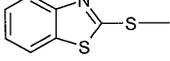
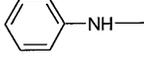
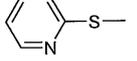
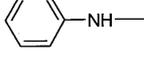
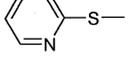
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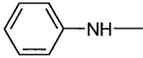
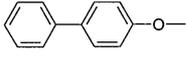
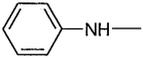
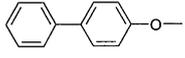
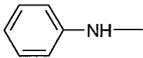
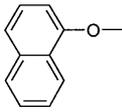
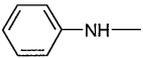
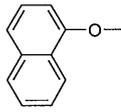
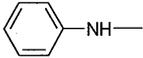
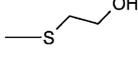
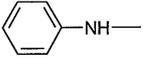
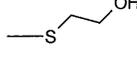
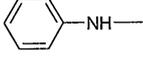
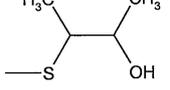
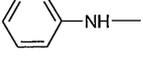
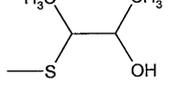
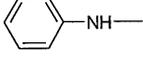
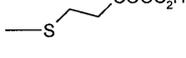
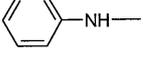
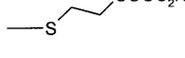
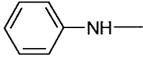
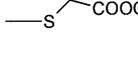
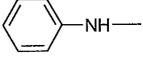
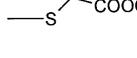
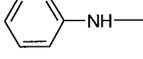
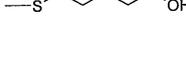
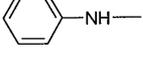
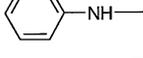
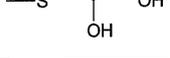
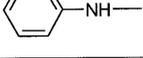
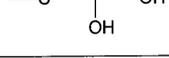
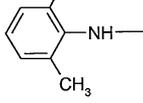
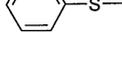
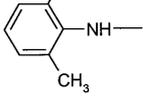
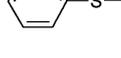
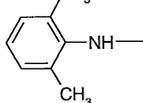
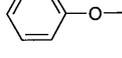
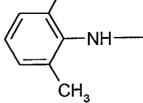
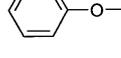
II. 1. (LCD)

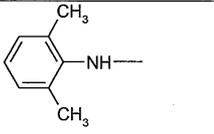
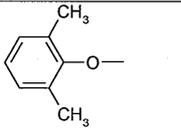
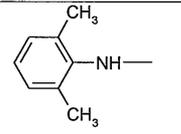
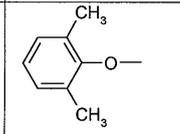
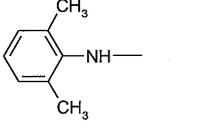
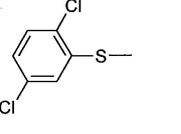
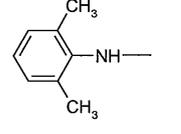
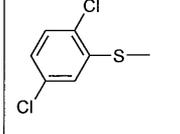
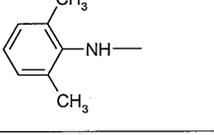
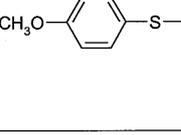
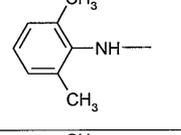
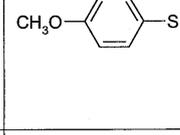
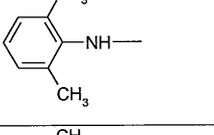
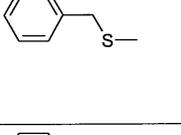
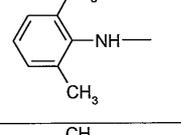
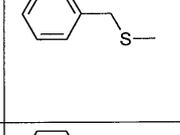
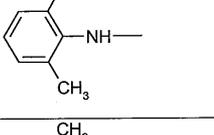
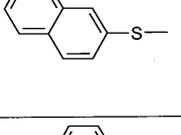
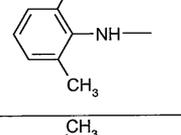
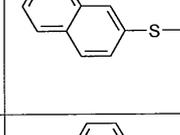
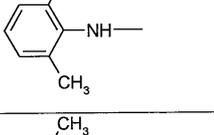
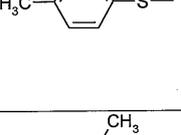
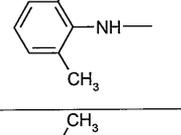
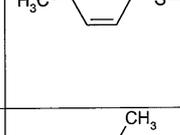
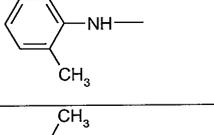
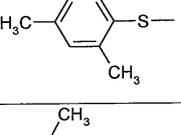
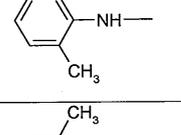
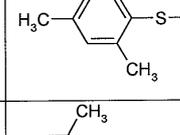
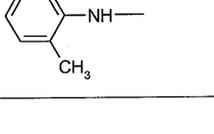
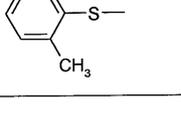
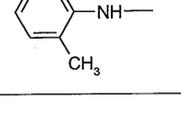
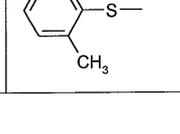
161(, n- 83.3g, 1 2.8g. Solsperse 5000 0.28g, Disperbyke[®]
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 30% , BYK Chemie) 4.10g 1- -2- (MPA) 14.62g
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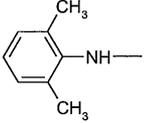
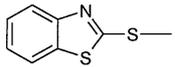
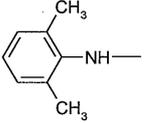
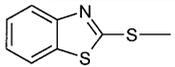
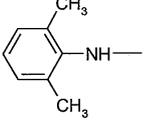
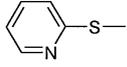
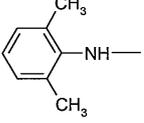
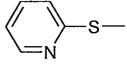
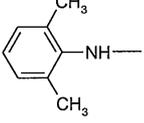
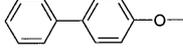
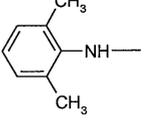
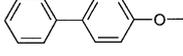
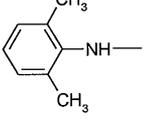
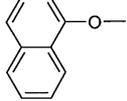
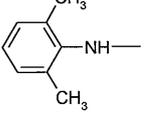
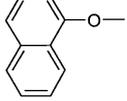
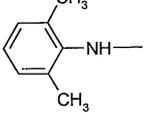
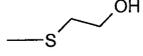
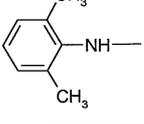
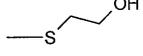
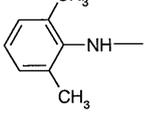
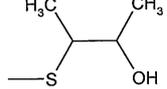
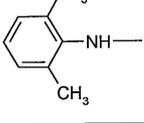
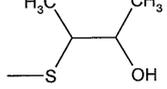
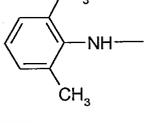
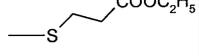
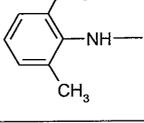
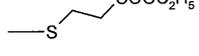
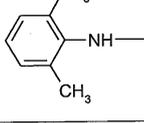
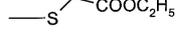
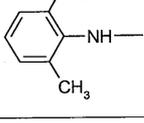
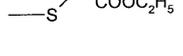


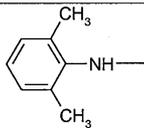
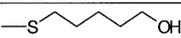
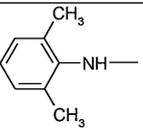
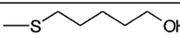
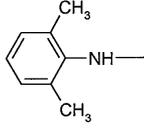
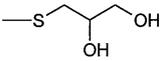
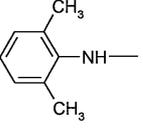
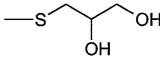
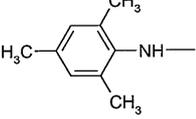
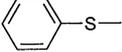
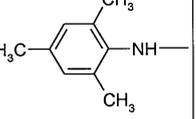
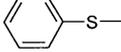
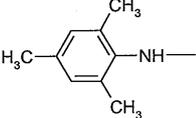
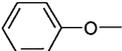
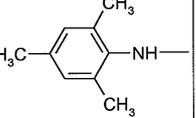
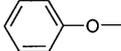
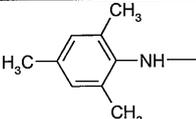
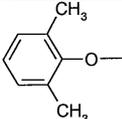
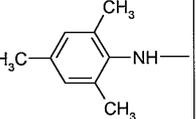
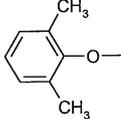
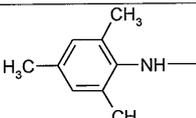
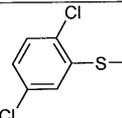
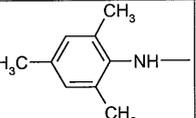
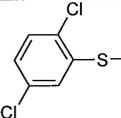
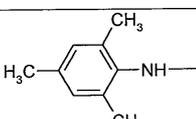
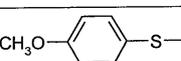
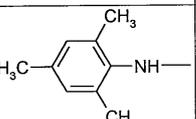
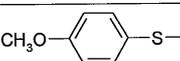
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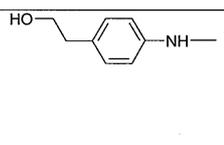
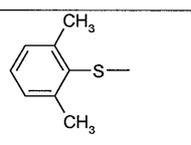
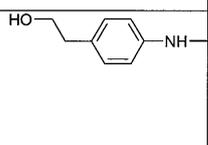
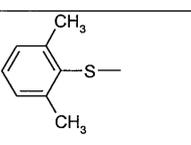
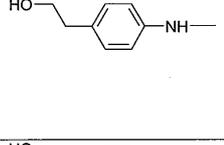
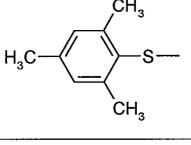
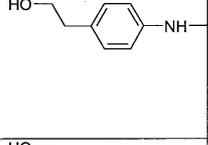
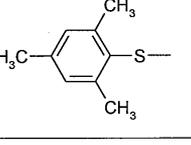
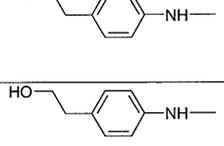
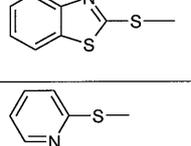
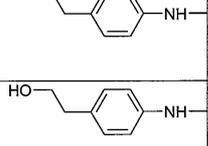
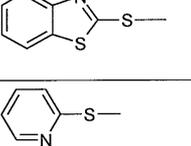
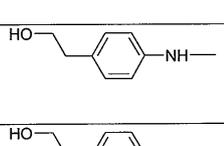
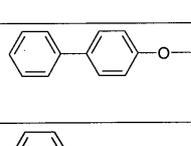
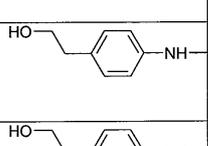
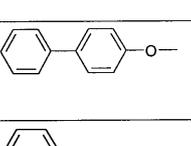
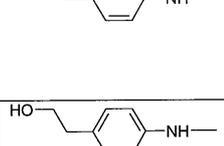
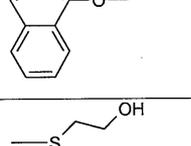
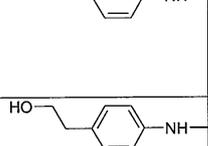
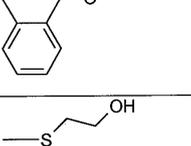
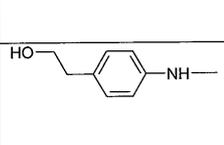
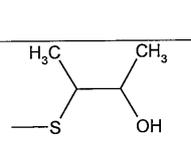
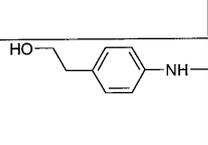
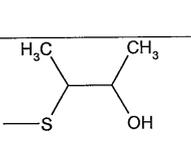
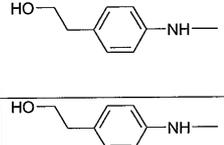
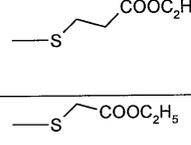
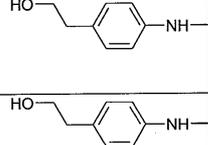
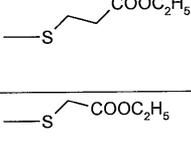
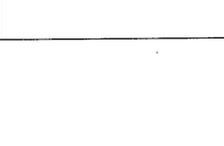
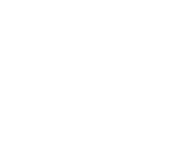
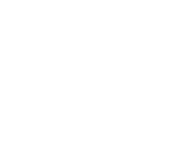
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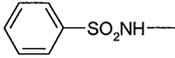
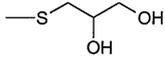
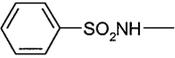
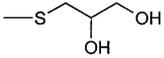
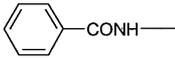
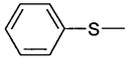
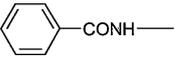
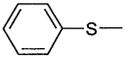
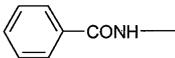
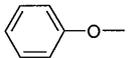
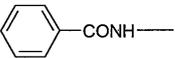
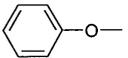
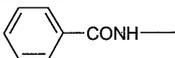
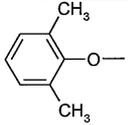
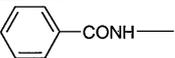
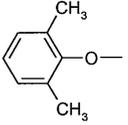
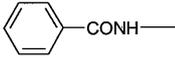
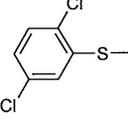
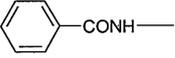
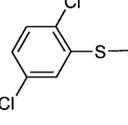
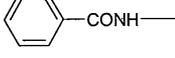
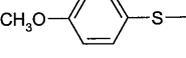
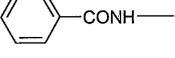
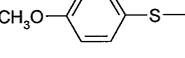
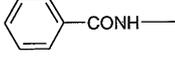
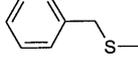
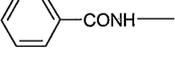
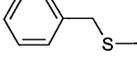
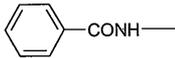
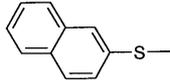
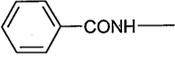
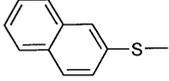
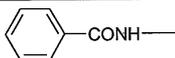
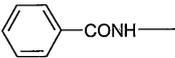
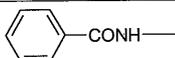
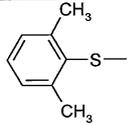
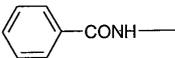
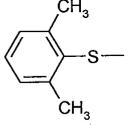
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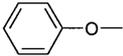
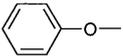
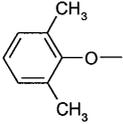
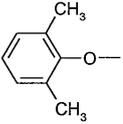
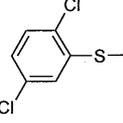
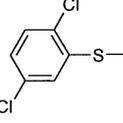
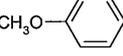
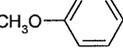
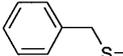
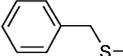
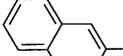
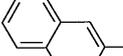
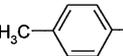
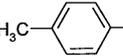
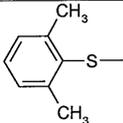
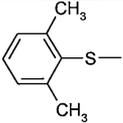
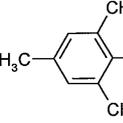
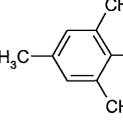
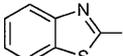
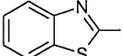
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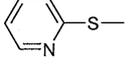
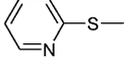
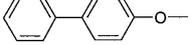
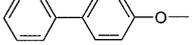
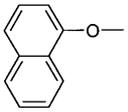
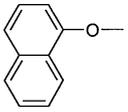
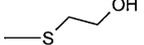
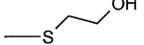
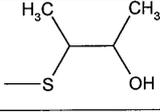
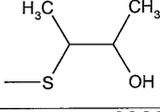
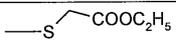
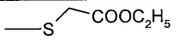
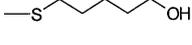
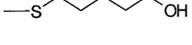
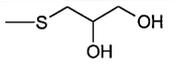
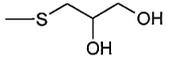
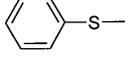
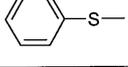
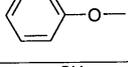
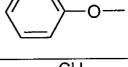
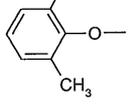
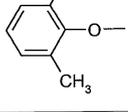
R ₁	R ₂	R ₃	R ₄

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	
$\text{—NH—CH}_2\text{—OH}$		$\text{—NH—CH}_2\text{—OH}$	
$\text{—NH—CH}_2\text{—OH}$		$\text{—NH—CH}_2\text{—OH}$	
$\text{—NH—CH}_2\text{—OH}$		$\text{—NH—CH}_2\text{—OH}$	

R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄

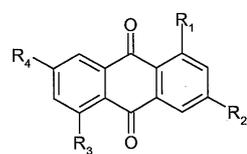
R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄

R ₁	R ₂	R ₃	R ₄

(57)

1.



I ,

R_1 , R_3 , $-NHR_5$, $-NHSO_2R_5$, $-NHCOR_5$, $-OR_6$, $-SR_7$,
 R_2 , R_4 , $-OR_6$, $-SR_7$,
 R_1 , R_4 가 $-SR_7$,
 R_5 , $-NH-$, $-NR_8-$, $-CONH-$, $-CONR_8-$, $-(C_nH_{2n}X)_m-H$, X , $-O-$, $-S-$, $-SO_2-$,
 10 , n , 2 , 6 , m , 1 ,
 R_6 ,
 R_7 , $H-$, $-NR_8-$, $-CONH-$, $-CONR_8-$, $-(C_nH_{2n}X)_m-H$, X , $-O-$, $-S-$, $-SO_2-$, $-N$

2.

1, R_1 , R_3 , $-NHR_5$, $-SR_7$, R_5 , R_7 , 1 |

3.

1, R_1 , R_3 , $-NHR_5$, $-SR_7$, R_5 , R_7 , 1 |

4.

3, R_5 가, 2-, R_7 , 1 |

5.

1, 2, R_2 , R_4 가 $-SR_7$, R_7 , 1 |

6.

5, R_7 , 1 |

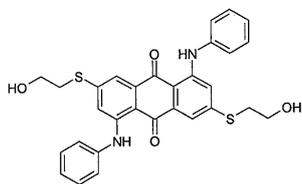
7.

6, R_7 , 2-, 1 |

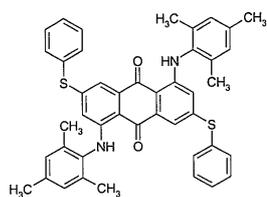
8.

1, la, lc, 1 |

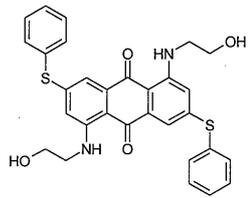
la



lb



lc



9.

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

10.

1 8 |

11.

| ,

12.

NH-, OH- 2 SH- NH, OH SH , , 가 1 |

13.

11 12

14.

1