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(65)  
(43)

(73) 813 106 908

(72) 813 106 908

(74)  
:

(54)

(CO<sub>2</sub>)가 (NO<sub>2</sub>-), (NH<sub>4</sub>+), (H<sub>2</sub>S)가  
PH가  
50 97 % 3 50 %  
1 15 % 85 99 %

(NO<sub>2</sub><sup>-</sup>), (NH<sub>4</sub><sup>+</sup>), (H<sub>2</sub>S)  
 가 , 가 , 가 가  
 ), (NH<sub>4</sub><sup>+</sup>), (H<sub>2</sub>S) 가 가 (NO<sub>2</sub><sup>-</sup>  
 가 (holding time) 15 , 50%  
 (amino acid) (amino bond) { (peptide) }  
 (peptide chain) (hydrogen bond) helical form( )  
 가 (amino acid) (side chain) (+) 가 , (-)  
 (protein) (salt)  
 가 ( ) (HCOH)  
 , ( ), ( ,  
 ),  
 PH  
 ( SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>) ,  
 ( , 2  
 ) ,  
 가  
 PH , PH  
 ,  
 ) (CO<sub>2</sub>)가 가 ( ,  
 PH 가  
 50 97 % 3 50 %  
 1 15 % 85 99 %

50 97 % 3 50 %

50 % PH 가 50 %

50 97 %

가 가

2 10 %

(yeast), (lactobacillus), (pho

tosynthetic microbe)

( )

[ 1]

[ 1]

	(CFU/g)	
	$1.0 \times 10^3$	
	$1.0 \times 10^3$	
	$1.0 \times 10^2$	( , )

가 가

0.01 1

%

H (buffer)

P

(NH<sub>4</sub><sup>+</sup>)

1 15 % 85

99 %

(yeast), (lactobacillus), (photosynthetic microbe)

(acetic acid, CH<sub>3</sub>COOH)

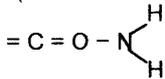
(湖池)

가 )  
no acid)

(amide bond)

(peptide)가

(ami



(peptid bond)

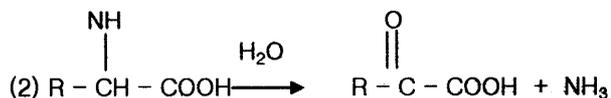
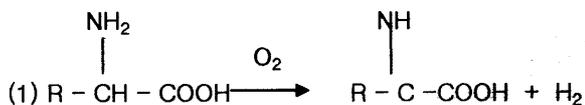
(amino acid) -  
( - amino group)

( - amino acid) AHA( - hydroxy acid)

(-H<sub>2</sub>)

(-NH<sub>3</sub>)

가 (+H<sub>2</sub>O)



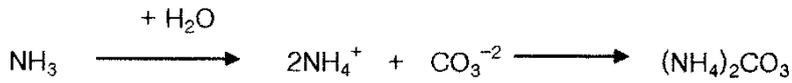
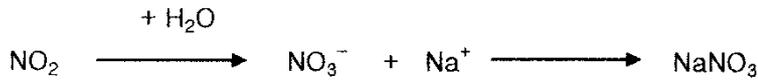
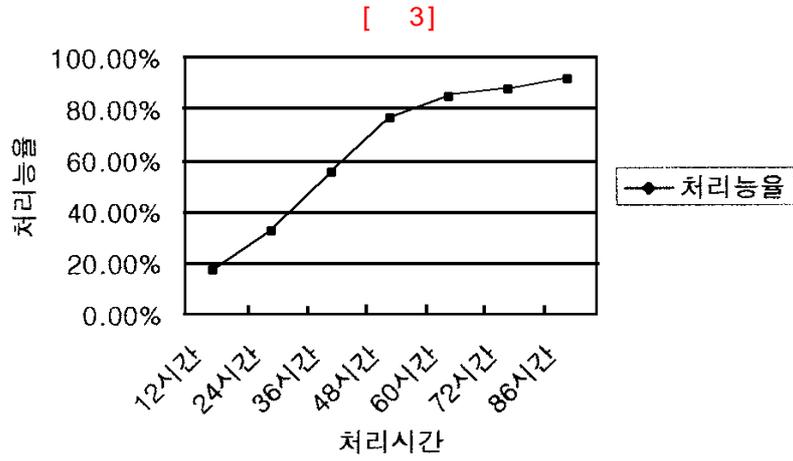
(ammonia) (amino acid) (keto acid),  
 (oxaloacetic acid), (ketohlutaric acid)  
 가 가  
 (1) ,  
 (2) HNO 가 (N<sub>2</sub>) (van slyke)  
 (3) (HCOH) -NH 가 mask . (sorensen)  
 (4) (CH<sub>3</sub> COOH) acetyation  
 (5) , PH, (1),(5)  
 , PH가 가 , PH가 (H+) 가  
 , PH가 Na+  
 , PH가 ( ) ,  
 (PH7) 가 ( )

[ 가 ]  
 (가) : ( )  
 ( ) ( ) : 400,000kg(400 )  
 ( ) 가 10ppm )  
 $400,000\text{kg} \times \frac{0.00001}{100} (10\text{ppm}) = 4\text{kg}$

( )  
 20 가 가 15 ( )  
 ( ) 50 97 % 3 50 % 1  
 15 % 가 10ppm 85 99 %  
 ) 0.01 1 %  
 ( 1)  
 ( 400 ) 10ppm 가 5ppm 4kg  
 12 Nitro test(NO<sub>2</sub>) )  
 ) [ 2] [ 3]

[ 2]

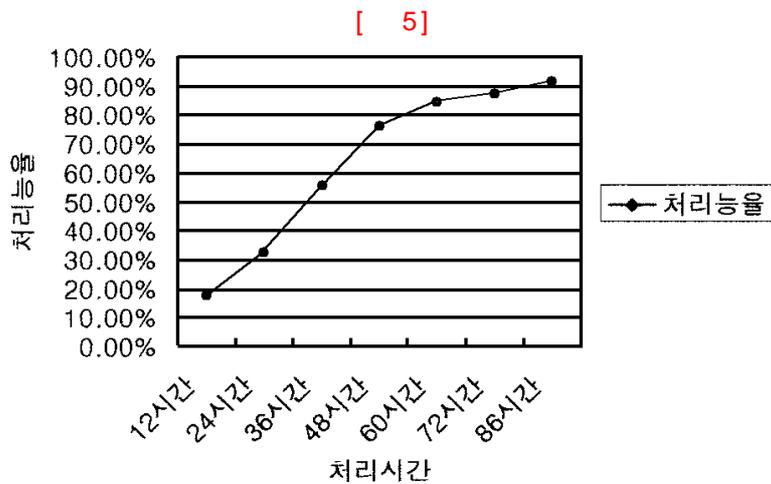
	12	24	36	48	60	72	86
(%)	18.10	33.20	56.20	77.10	85.40	88.20	92.10



(2) (CO<sub>2</sub>) 가 가  
 ( 400 ) 40ppm 가 10ppm 16kg  
 ) 12 Nitro test(NO<sub>2</sub>) )  
 ) [ 4 ] [ 5 ]

[ 4 ]

	12	24	36	48	60	72	86
(%)	15.10	31.20	43.20	56.10	78.40	88.20	91.90



1 2 ) ( NO<sub>2</sub>- ) 10ppm 가  
 , , 10ppm 40ppm 10ppm 가  
 , 40ppm 1

( ) 가 10ppm PH가 ( ) 가 10ppm N-N(Amerbac-N-N) 1 (NO<sub>2</sub>-) NH<sub>3</sub> ( 400 ) 10ppm 가 5ppm 1 N-N 4kg, 7kg, 10kg 2 N-N 0.5 % 1/2 가 2 N-N 15 30.2%, 20 1 50.2% (NO<sub>2</sub>-) PH가 ( ) 가 (NO<sub>2</sub>-) PH (NO<sub>2</sub>-) 가 가

(57)

1.

50 97 % 3 50 %

2.

2 10 %가

3.

0.01 1 %가

4.

5.

6.

1 15 % 85 99 %

7.

6