Drawings

Fig.1

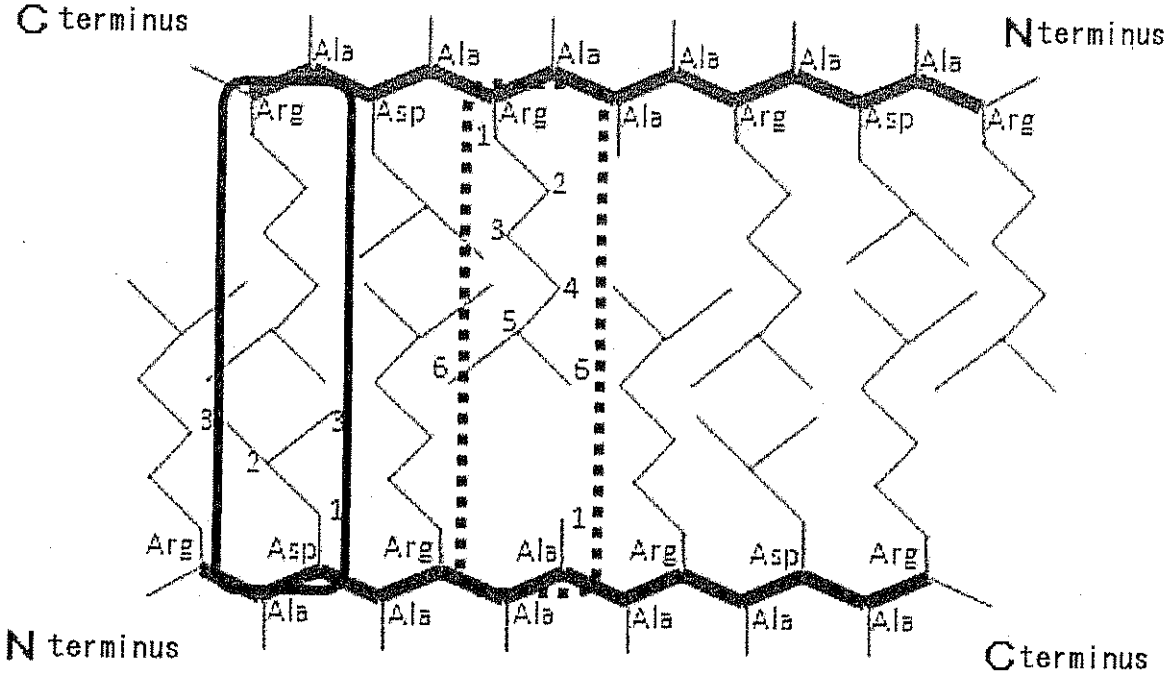


Fig.2

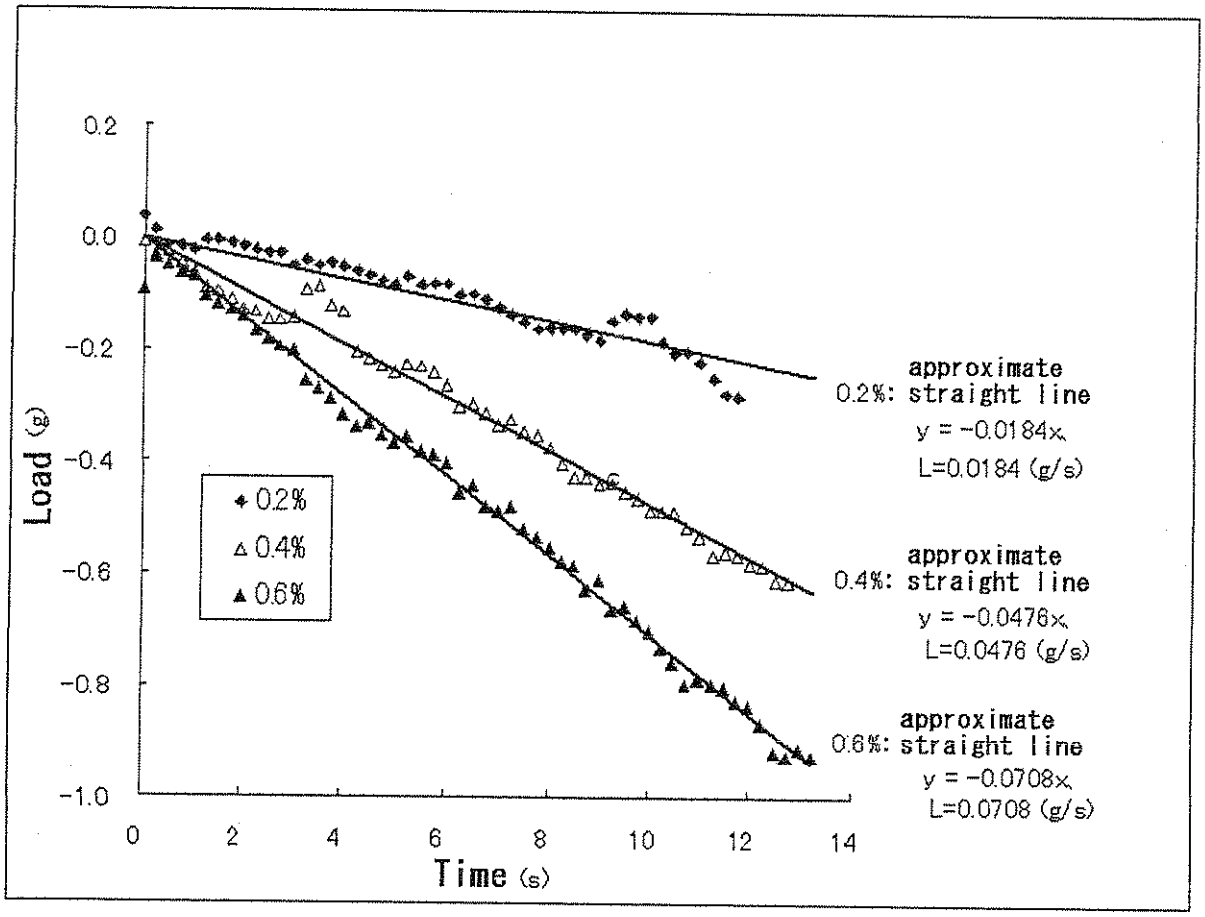


Fig.3 (a)

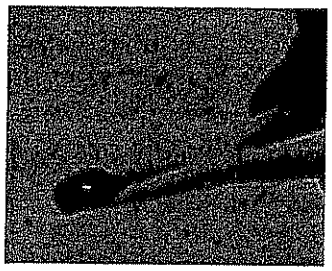


Fig.3 (b)

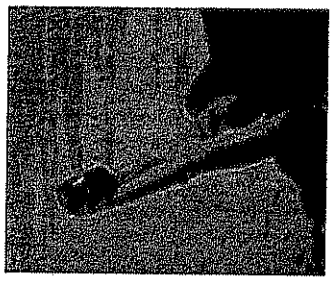


Fig.3 (c)

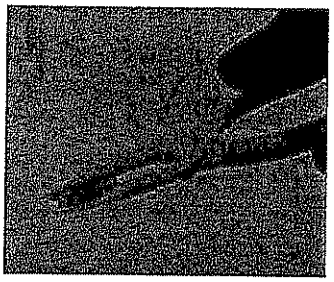


Fig.4

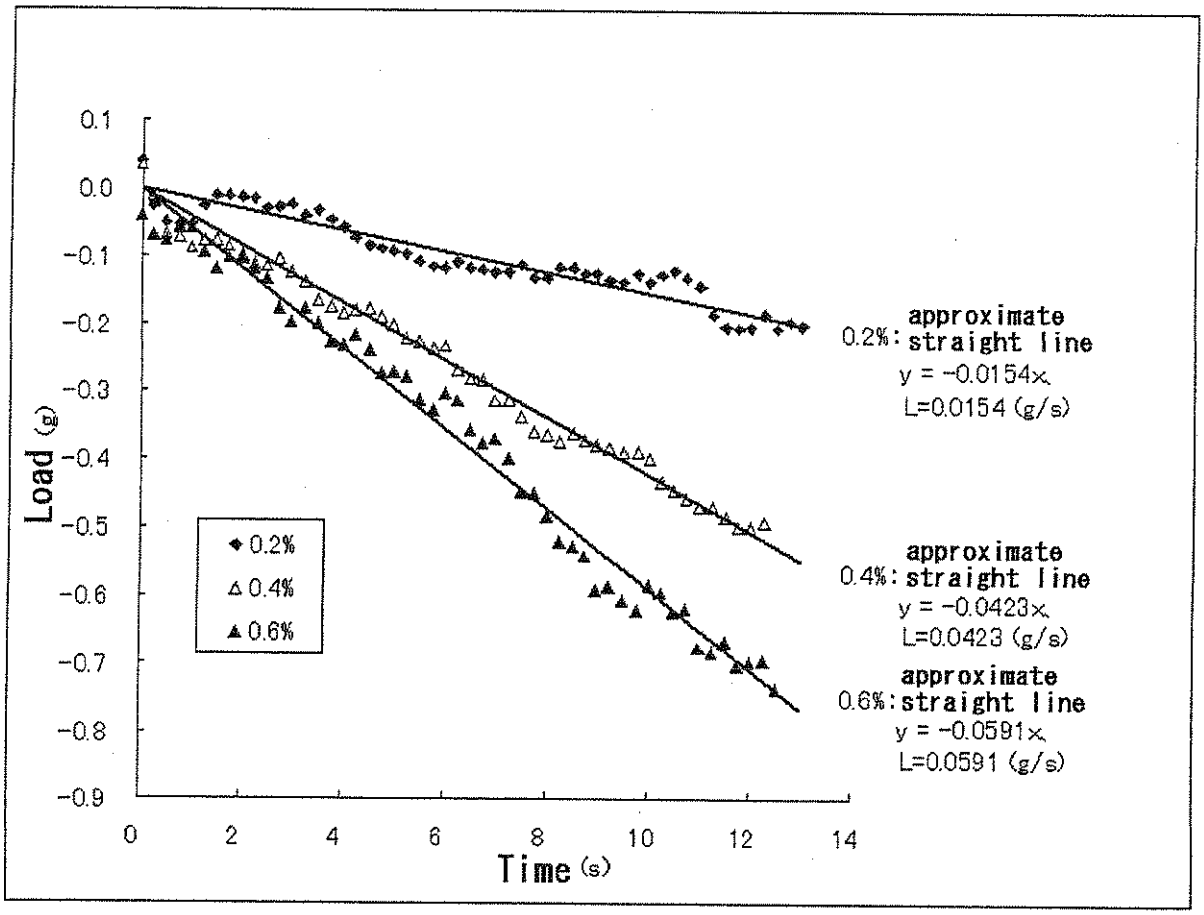

0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
Load (g)
0
2
4
6
8
10
12
14
Time (s)
◆ 0.2%
△ 0.4%
▲ 0.6%
approximate straight line
0.2%: y = -0.0154x
L=0.0154 (g/s)
approximate straight line
0.4%: y = -0.0423x
L=0.0423 (g/s)
approximate straight line
0.6%: y = -0.0591x
L=0.0591 (g/s)

Fig.5

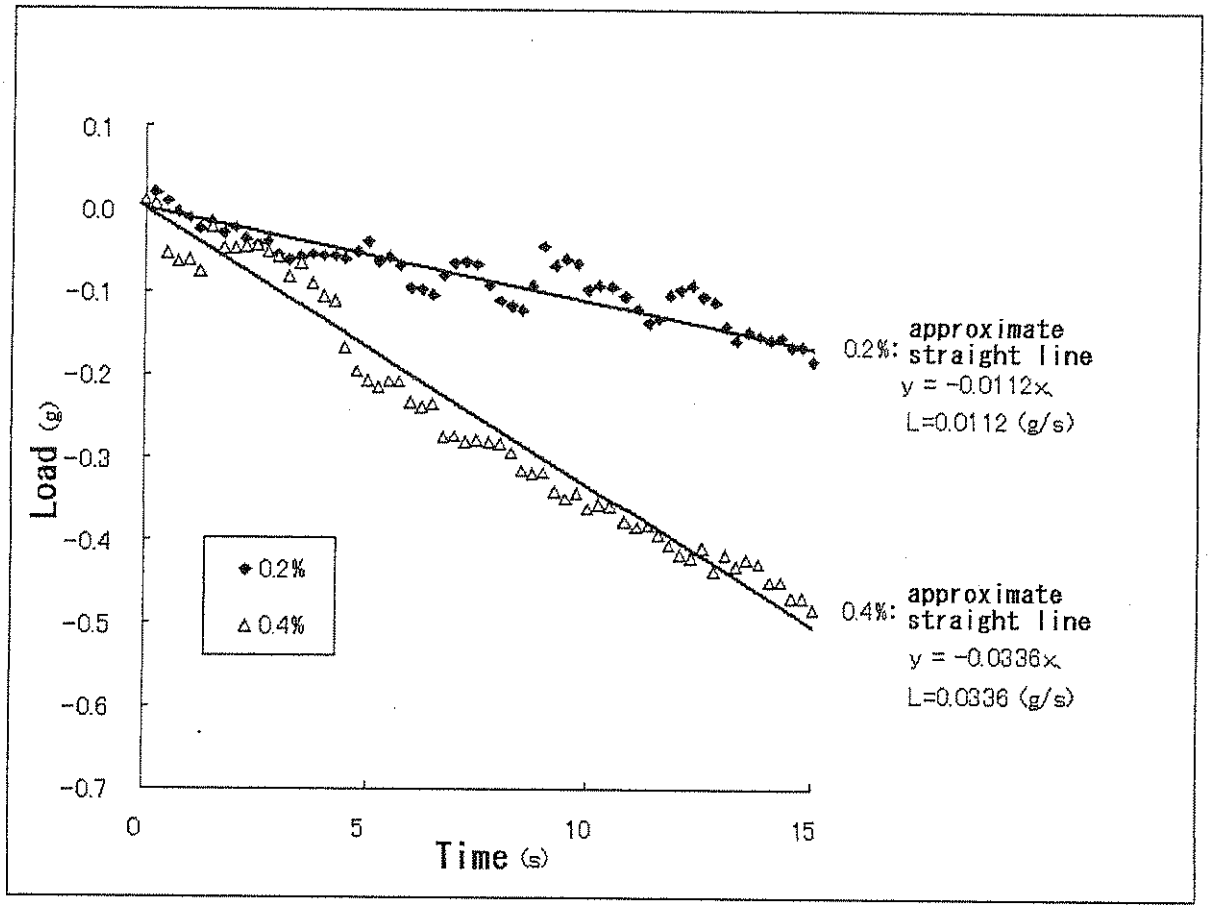

0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
Load (g)
0
5
10
15
Time (s)
◆ 0.2%
△ 0.4%
0.2%: approximate straight line
y = -0.0112x
L=0.0112 (g/s)
0.4%: approximate straight line
y = -0.0336x
L=0.0336 (g/s)

Fig.6

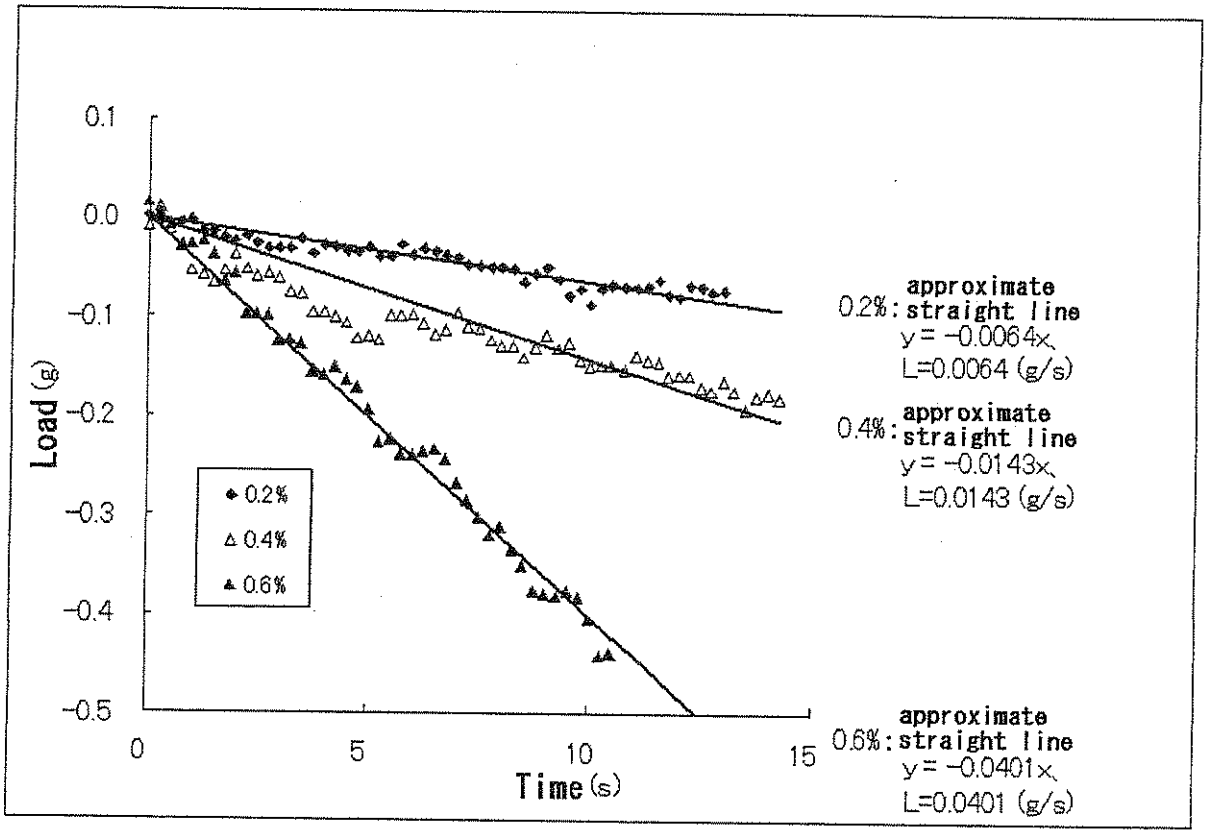

0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
Load (g)
0
5
10
15
Time (s)
0.2%
0.4%
0.6%
0.2%: approximate straight line
y = -0.0064x
L=0.0064 (g/s)
0.4%: approximate straight line
y = -0.0143x
L=0.0143 (g/s)
0.6%: approximate straight line
y = -0.0401x
L=0.0401 (g/s)

Fig.7

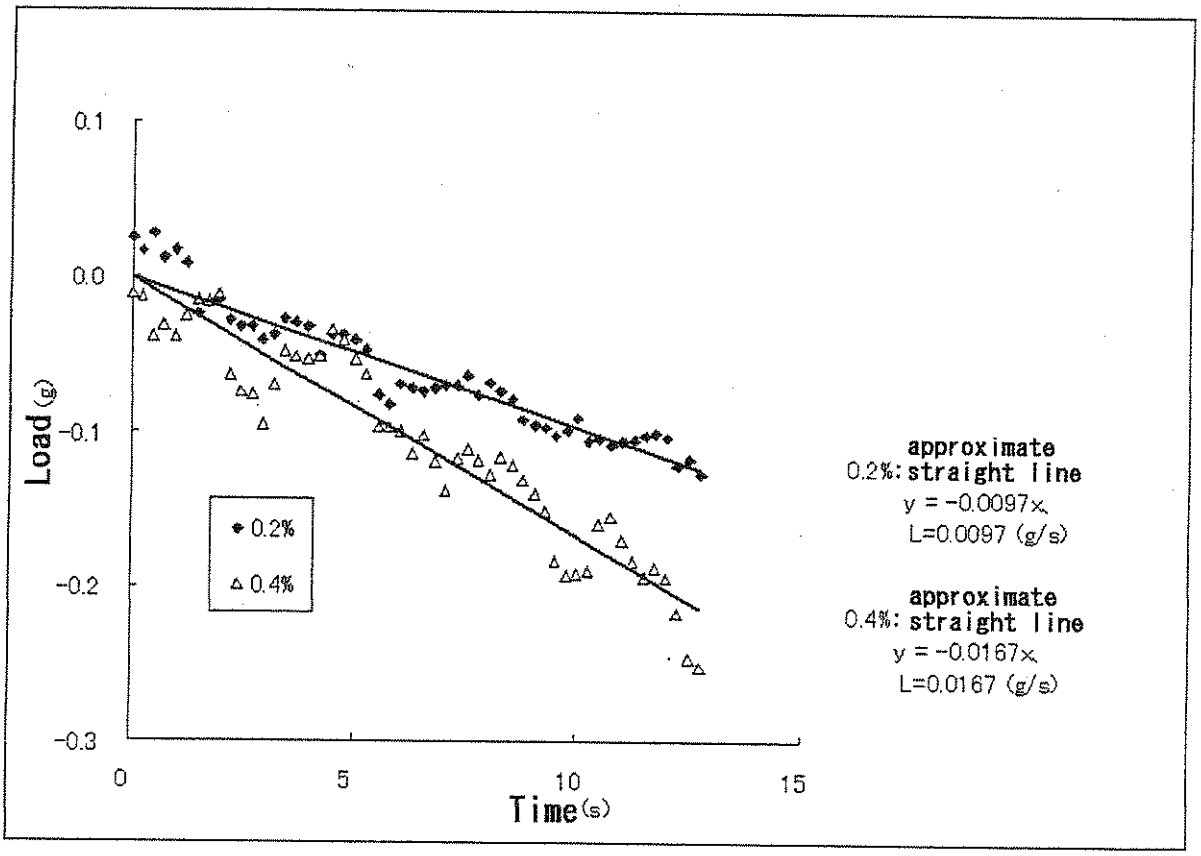

0.1
0.0
-0.1
-0.2
-0.3
Load (g)
0
5
10
15
Time (s)
0.2%
0.4%
approximate
0.2%: straight line
y = -0.0097x
L=0.0097 (g/s)
approximate
0.4%: straight line
y = -0.0167x
L=0.0167 (g/s)

Fig.8

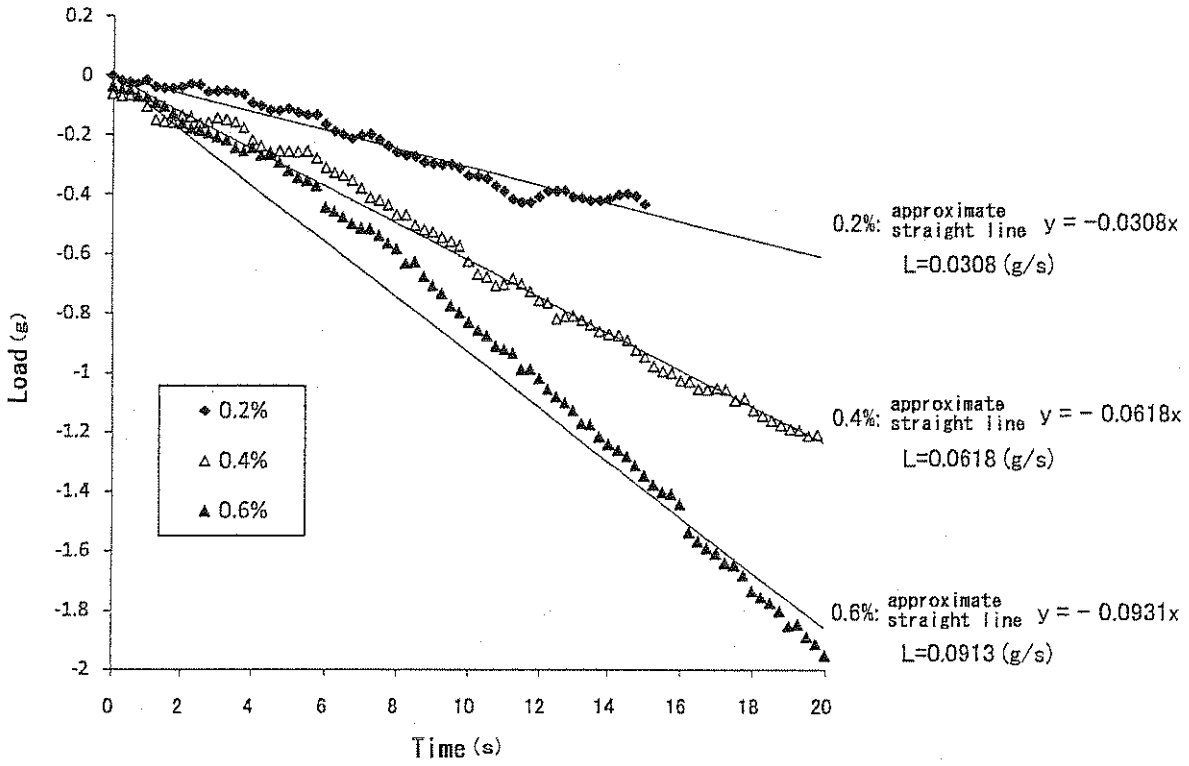

0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
-1.4
-1.6
-1.8
-2
Load (g)
0
2
4
6
8
10
12
14
16
18
20
Time (s)
0.2%
0.4%
0.6%
0.2%: approximate straight line y = -0.0308x
L=0.0308 (g/s)
0.4%: approximate straight line y = - 0.0618x
L=0.0618 (g/s)
0.6%: approximate straight line y = - 0.0931x
L=0.0913 (g/s)

Fig.9

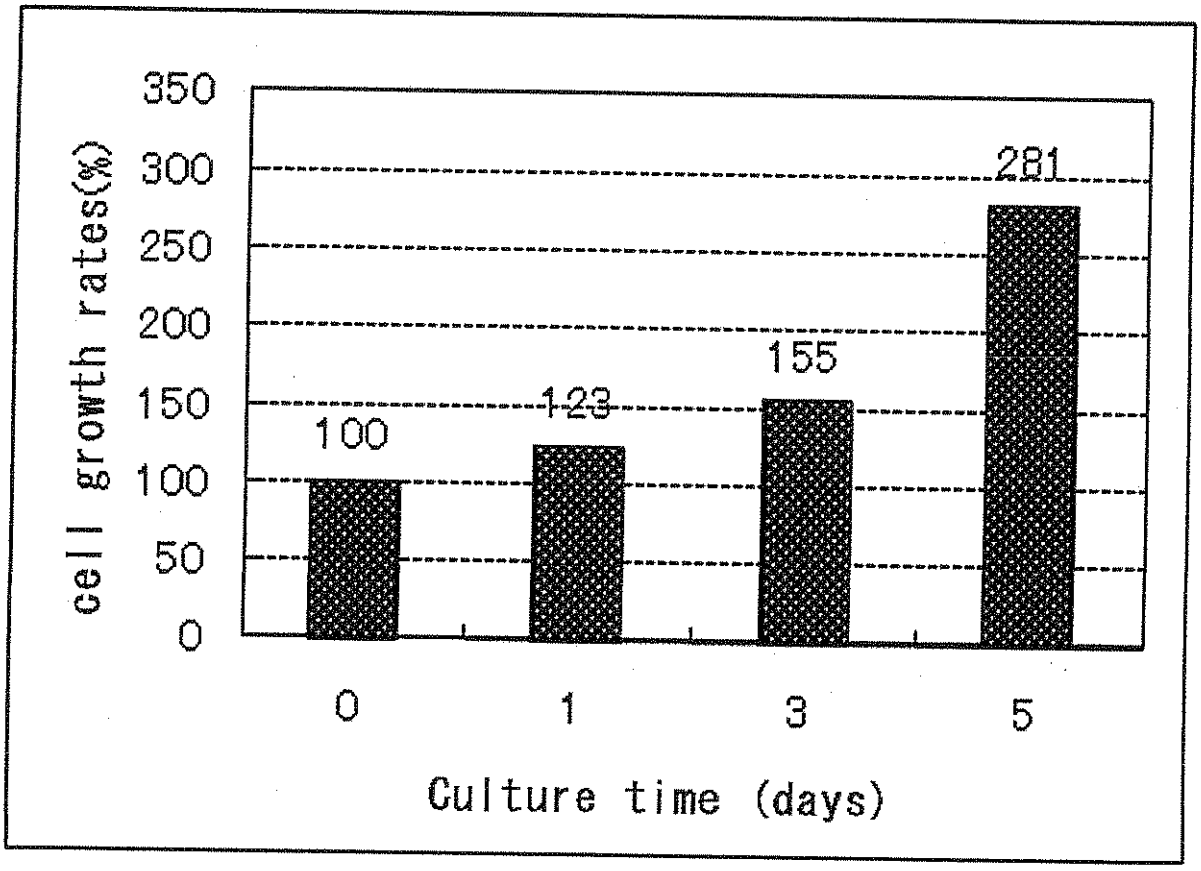

cell growth rates(%)
350
300
250
200
150
100
50
0
100
123
155
281
0
1
3
5
Culture time (days)

Fig.10(a)

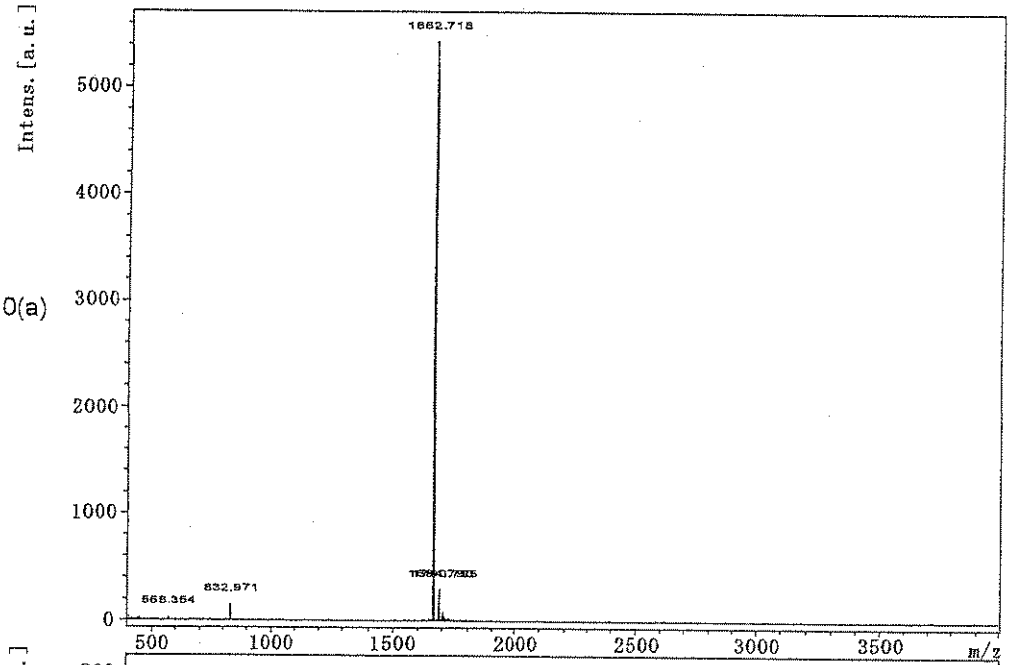


Fig.10(b)

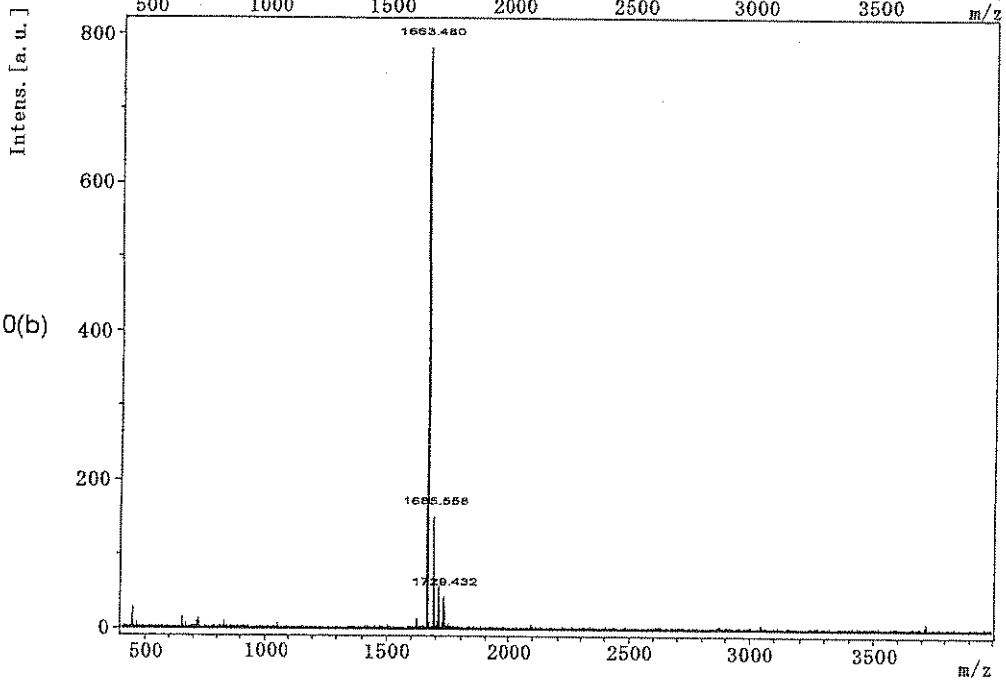


Fig.11(a)

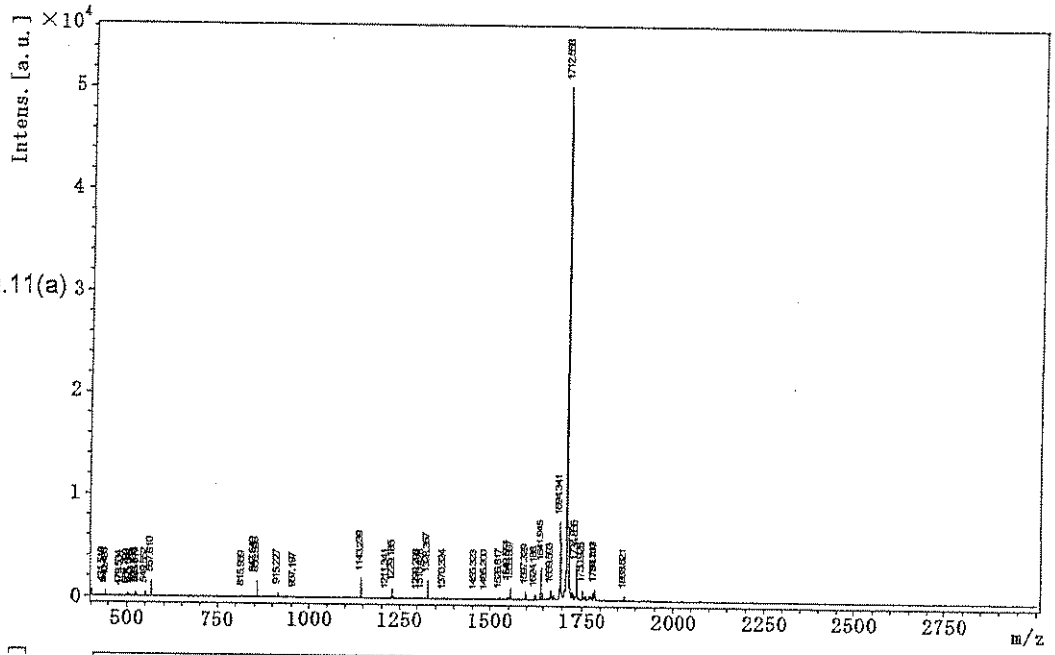


Fig.11(b)

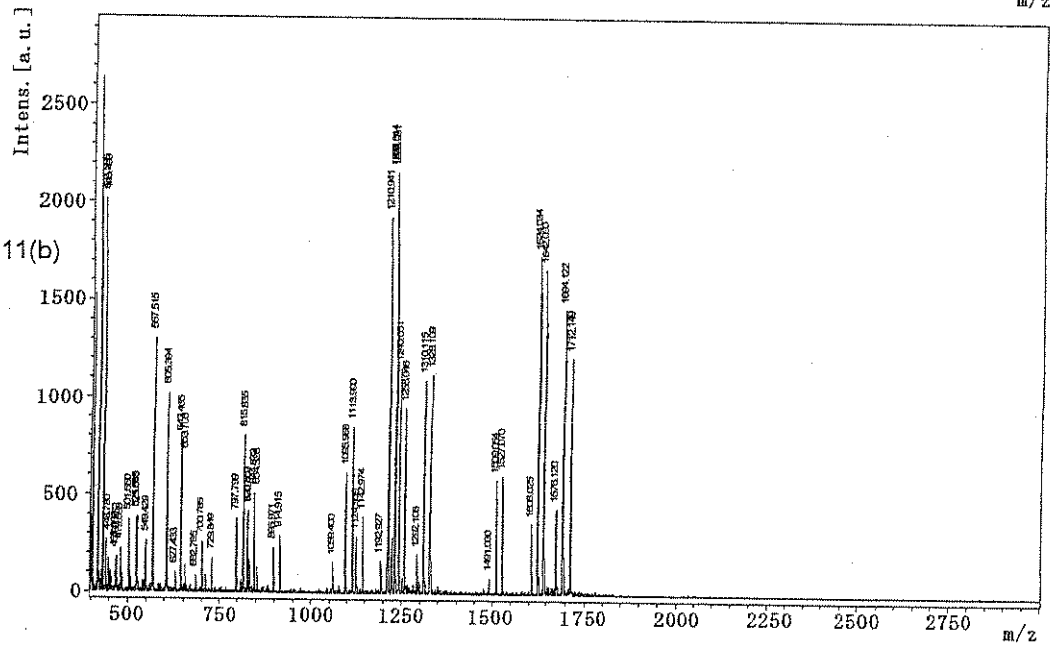


Fig. 12(a)

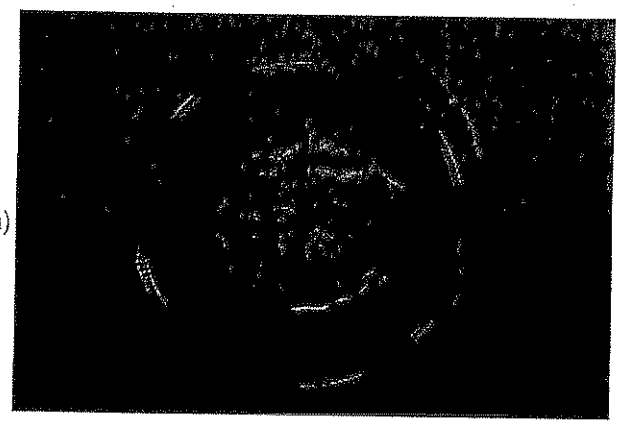


Fig. 12(b)



Fig. 12(c)

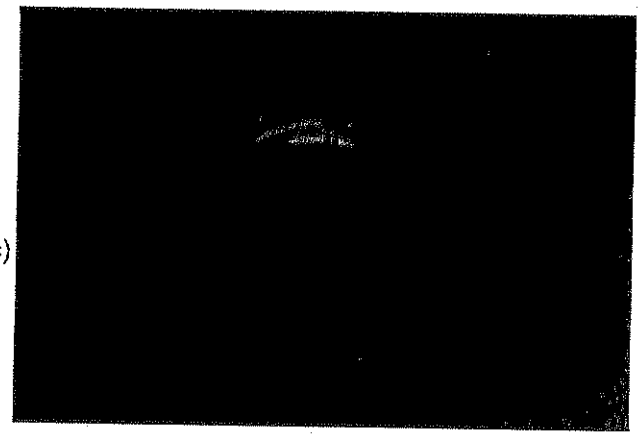


Fig.13(a)

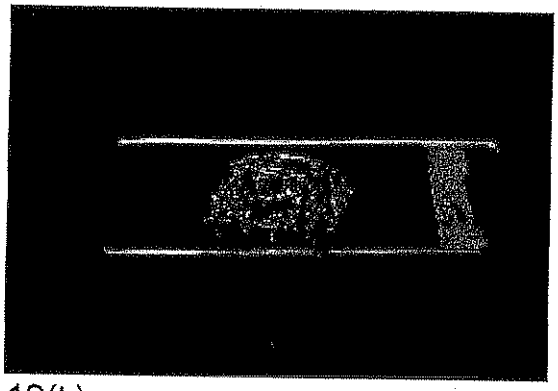


Fig.13(b)

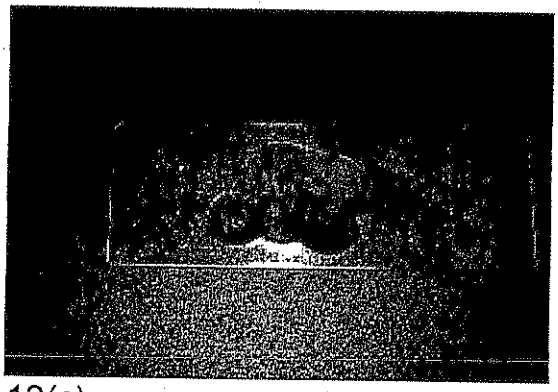


Fig.13(c)

