

Enzyme delutions

528

	Di	De	V _{cor}					
1	-3	048	37					
2	0	083	69					
3	0	124	110					
4	0	159	145					
5	0	198	184					
6	4	253	235					
7	0	274	260					
8	2	321	305					
9	4	337	319					
10	1	406	391					
0	-2	+12	-14					
NaPM/507.5		M/2000 ONBS		399 10 ⁻² - 10 ⁻³				

Quantitative adaptation data

4/23/49

			Di	Df	
1	K12	Y2lac	090	349	
2	"	" glu	090	087	
3	K12	Bug M/500	120	790	(7 min. reading!)
4	"	M/1000	99	529	
5	W112	Y2lac	132	170	
6	"	glu	80	073	
7	"	lac M/500	80	095	
8	"	" M/1000	93	106	
9		Bug 4/500	113	310	
10		" 4/1000	120	228	

10 min. readings
 Note tremendous activity
 of Buzgal adapted cells of K-12!

4/24/49.

Grow W112 overnight in Y2 Lac M/500; Bugal M/500 and Glu M/500

A = K-12 B = Y70 C = W112

(8-10 min.)

1 = Lac M/50 2 = M/500 3 = Bug M/500

		D_i <u>cells</u>	D_i <u>cor</u>		Δ	Δ/D_i	R.A. <u>20min.</u>	
<u>K-12</u>	A	1	70	73	281	208	600	(470)
		2	110	109	223	114	200	514
		3	81	83	470	307	950	(800)
								590
<u>Y70</u>	B	1	117	115	140	025	042	
		2	111	110	120	010	009	
		3	113	112	178	064	057	
<u>W112</u>	C	1	90	91	127	036	040	
		2	113	112	127	015	013	
		3	89	89	239	150	171	

These cells are shaken, and therefore presumably aerobic!
Compare earlier data which show a wider discrepancy.

[Cf Sec 421. - in last column]

EML 194. (Y10 for K-12)

Much greater differentials.

Compare Y10(K) and W112(Lac-)

April 25.

Without shelving:

20 min. kato

Y10, lac M/50
 - M/500
 3 Bug "
 N&B
 Y2 Blu

D: Y70
 048
 078
 053
 063
 047

152
 174
 113
 070
 056

Acc
 96
 91
 52
 0
 01

R.A.
 200
 116
 098
 000
 002

W112, 1
 2
 3

072
 109
 97

086
 119
 143

08
 08
 43

011
 007
 044

Blanks + empty

013

Shelven:

20 min.

Y10 1
 2
 3
 4
 5

108
 119
 097
 130
 080

460
 570
 441
 150
 086

350
 452
 341
 020
 009

324
 380
 331
 015
 001

W112 1
 2
 3

096
~~096~~ 103
 122

119
 120
 262

020
 014
 139

021
 014
 114

These data can be used:

	M/500 lac	M/500 Bug	M/50 Blu
Y10 lac, +	380	331	001
W112 lac, -	014	114	—

Adaptivity of galactosidase

536

5/6/49.

Y10 after 3 transfers in NSB, grown overnight shaken

in	15 min.	Di	Df.	Con Δ.	A	R.A. 15m.	20m.
lac Y2		100	441	351-22	341	324 329	439
Penicillin (50u)		111	128	6 22	17	005.4	007.2
NSB.		109	127	6 22	18	005.5	007.3
0				22			

Increase upon adaptation is 61x
 i.e., unadapted cells have activity ca. 1.6% of adapted!
 These may be incipient adaptation.

Kinetics of adaptation

547

5/25/49

Harvest 410 from 6 hrs. heavily noc: 42 blue & salmon.
 Suspend 2 ml \bar{c} 2 ml 1% O₂, 2 ml H₂O, 2 ml M/5 buffer.
 Take 4 ml samples into M/100 oxide M/50 buffer then back to M/100

	T=0	D _i 104	D _f 97	Acc.	R.A.
70M					
745	45 m.	101	100		
730	150 m.	086	097		
950	170 m.	079	090		

No adaptation found

Adaptation kinetics

547a

5/26/49

Y10. 2 ml cells
T₀ = 2:35 PM.

1 ml 1% Lac 1/2 ml buffer 1/2 ml H₂O or H.C.
Assay in azide phosphate

(A) (B)
cells very clumpy!
apparent in growth medium.

A.
(O)

T	O _i	D+
T ₀	121	133
3 PM	130	168
3:35	117	144
5 PM	109	132
7 PM	106	134

B
(H.C.)

T ₀	128	133
3 PM	130	148
3:35	120	129
5 PM	118	147
7 PM	118	133

↓
Minute adaptation

Adaptation rate.

7/5/49.

Harvest K-12 from standing culture in Y2 Bles. Conc. ca ~~20~~ 10 X.
in H₂O. Ad. Syst. contains ~~4/50~~ 1ml NaP 4/5 7.5, 1ml
2% lactose, 1ml cells and 1ml supp.

Take 3ml samples to qual ONPG test system.

A). No supplement

ONPG concentration 0.21.

B). Peptone 1ml 2%.

4PM Start.

T.	A				B				
	Di	Df	A (corr)	R.A.	Di	Df	Δ	R.A.	
15m.	4 ¹⁵	061	071	-005	—	064	087	008	012
	5 ⁰⁰	056	077	+005	009	067	098	038 038	057
	7 ⁰⁰	048	098	+034	071	083	310	214	261
	8 ⁰⁰	040				099	780	670	680

Deadaptation.

Harvest K12 freshly grown on Y2 Lec.

8⁴⁰ PM

5ml sample (from c). 8minis.

071 152 067

236 (20min)

A) 1ml cells 1ml buffer 1ml glucose

1ml H₂O

B) do.

1ml M/100 Aride

C) do.

1ml lactose

1ml H₂O.

Di Df

R.A. (20)

A	062	267
B	062	300
C	062	260.

Inappreciable deadaptation!

c should be counted for inhibition by 0.1% lactose.

10PM
(80minis)

Deadaptation

575a

July 6, 1949

Harvest K12 from 50ml Y2 loc overnight. Conc. ca 10x.
System (4ml)

1ml cells_a 1ml buffer_b 1ml 2% sugar_c 1ml pept_d or water_d

A. a b —

B. a b — d

C. a b glucose —

D. a b glucose d

Asuff only

peptone

glucose (final conc. $2.2 \times 10^{-3} M$)

peptone + glucose.

10⁴⁵ AM.

Assay in M/100 azide M/50 Na buffer. .2ml samples (d = 0.50)

	Di	Df.	Δcor	R.A.
A	050	143		
B	050	181		
C	049	100		
D	048	118.		

Does glucose compete for entrance into cell?

1⁴⁵ PM

A	038	552
B	049	226
C	046	380
D	080	234.

Note augmented activity of cells incubated in buffer.

Sediment this tube and examine supernatant.

5ml supernatant. ca 120

Most activity is still in cells!