

CHAPTER III

RESULT

1. Calibration of laboratory reference standard

The lyophilized rabbit brain rabies vaccine applied for laboratory reference standard, were triplicate calibrated the potency by comparison with the third International Reference Preparation of rabies' vaccine. The potency of vaccines are shown in Table II. Average potency were calculated as geometric mean of 0.6 IU/ml. From the result also shows that these lyophilized products had regularly dispersed suitable for being the laboratory reference standard.

2. Potency test of vaccine

2.1 Semple vaccine

The potency of tested Semple vaccines were shown in Table III (A-E).

2.2 Suckling mouse brain vaccines (SMBV)

The potency of SMBV in this test were shown in Table IV (A and B)

An accelerated, degradation test were the method to test the stability of vaccine in suspension media, the results were shown in Table V (A and B)

2.3 Lyophilize suckling mouse brain vaccines

The lyophilized vaccines were tested for potency and stability, the results were shown in Table IX.

In Table III, IV illustrates the effect of inactivation methods on vaccine potency. Inactivated by heat, vaccine preparation resulted the antigenic potency higher than inactivated by phenol, but lower than BPL.

In comparison of the effect of various suspension media on vaccine potency and stability, no significant differences were observed as shown in Table III to Table VIII.

The contrast of potency in lyophilized suckling mouse brain vaccines that shown in Table IX indicates the effect of stabilizer, though lactose saline dealt' with higher potency as sucrose saline and dextran-saline. But vaccine was more stable in sucrose saline.



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Table II : Calibration of the Potency of Laboratory Reference Standard

Vaccine	Dilution	Survived	Died	Cummulative		Z Mortality	50 Z End point	Potency
				Survived	Died			
International Reference Standard	1:100							
	1:500	8	8	15	8	35		
	1:2,500	7	9	7	17	71	$10^{-2.99}$	10 IU/mL
	1:12,500	0	16	33	33	100		
	1:62,500	0	16	49	49	100		
Lyophilized Rabbit Brain Vaccine I	1:5	16	0	32	0	0		
	1:25	14	2	16	2	11	$10^{-1.75}$	0.58 IU/mL
	1:125	1	15	2	17	89		
	1:625	1	15	1	32	97		
Lyophilized Rabbit Brain Vaccine II	1:5	12	4	25	4	14		
	1:25	10	6	13	10	43	$10^{-1.76}$	0.59 IU/mL
	1:125	3	13	3	23	89		
	1:625	0	16	0	39	100		
Lyophilized Rabbit Brain Vaccine III	1:5	16	0	32	0	0		
	1:25	11	5	16	5	24	$10^{-1.75}$	0.58 IU/mL
	1:125	5	11	5	16	76		
	1:625	0	16	0	32	100		

Calculation for the geometric Mean (G.M), (39).

$$G.M. = \sqrt[n]{a \times b \times \dots \times n}$$

$$\therefore \text{Potency of Lyophilized Rabbit Brain} = \sqrt[3]{0.58 \times 0.59 \times 0.58}$$

$$= \sqrt[3]{0.34}$$

$$= 0.58$$

$$\therefore \text{Potency of Laboratory Reference Standard} = 0.58 \text{ IU/mL}$$

$$\text{OR} = 0.6 \text{ IU/mL}$$



Table III A : Comparison of the potency of semple vaccine 10 % suspension using NSS and PBS
as suspension media and inactivated by various methods.

Vaccine	Dilution	Survived	Died	Cumulative		% Mortality	50 % End point	Potency
				Survived	Died			
Laboratory Reference Standard	1:5	1	15	1	30	3	$10^{-1.67}$	0.6 IU/mL
	1:25	5	11	6	15	24		
	1:125	12	4	18	4	81		
	1:625	16	0	34	0	100		
B-PS	1:5	4	12	4	17	19	$10^{-1.09}$	0.16 IU/mL
	1:25	11	5	15	5	75		
	1:125	16	0	31	0	100		
P-PS	1:5	8	8	8	10	44	$10^{-0.79}$	0.08 IU/mL
	1:25	14	2	22	2	82		
	1:125	16	0	38	0	100		
H-PS	1:5	4	12	4	15	21	$10^{-1.02}$	0.13 IU/mL
	1:25	13	3	17	3	85		
	1:125	16	0	33	0	100		
B-NS	1:5	3	13	3	18	14	$10^{-1.12}$	0.17 IU/mL
	1:25	11	5	14	5	74		
	1:125	16	0	30	0	100		
P-NS	1:5	9	7	9	10	47	$10^{-0.75}$	0.07 IU/mL
	1:25	13	3	22	3	88		
	1:125	16	0	38	0	100		
H-NS	1:5	4	12	4	15	21	$10^{-1.02}$	0.13 IU/mL
	1:25	13	3	17	3	85		
	1:125	16	0	33	0	100		

Remark : Virus Titre = $10^{-6.20}$

B-NS = Betapropiolactone inactivated in normal saline (NSS)

B-PS = Betapropiolactone inactivated in phosphate buffer saline (PBS)

H-NS = Heat inactivated in NSS

H-PS = Heat inactivated in PBS

P-NS = Phenol inactivated in NSS

P-PS = Phenol inactivated in PBS

Table III B : Comparison of the potency of sample vaccine 10 % suspension using NSS and PBS as suspension media and inactivated by various methods.

Vaccine	Dilution	Survived	Died	Cumulative		Mortality %	50 % End point	Potency
				Survived	Died			
Laboratory Reference Standard	1:5	0	16	0	32	0	$10^{-1.74}$	0.6 IU/mL
	1:25	5	11	5	16	24		
	1:125	12	4	17	5	77		
	1:625	15	1	32	1	97		
B-PS	1:5	1	15	1	28	3	$10^{-1.61}$	0.44 IU/mL
	1:25	5	11	6	13	32		
	1:125	14	2	20	2	91		
P-PS	1:5	2	14	2	23	8	$10^{-1.35}$	0.24 IU/mL
	1:25	8	8	10	9	53		
	1:125	15	1	25	1	96		
H-PS	1:5	1	15	1	28	3	$10^{-1.58}$	0.42 IU/mL
	1:25	7	9	8	13	38		
	1:125	12	4	20	4	83		
B-NS	1:5	0	16	0	29	0	$10^{-1.65}$	0.49 IU/mL
	1:25	5	11	5	13	28		
	1:125	14	2	19	2	91		
P-NS	1:5	3	13	3	23	12	$10^{-1.40}$	0.27 IU/mL
	1:25	7	9	10	10	50		
	1:125	15	1	25	1	96		
H-NS	1:5	0	16	0	28	0	$10^{-1.56}$	0.40 IU/mL
	1:25	8	8	8	12	40		
	1:125	12	4	20	4	83		

Remark : Virus Titre = $10^{-6.32}$

B-NS = Betapropiolactone inactivated in Normal saline (NSS)

B-PS = Betapropiolactone inactivated in phosphate buffer saline (PBS)

H-NS = Heat inactivated in NSS

H-PS = Heat inactivated in PBS

P-NS = Phenol inactivated in NSS

P-PS = Phenol inactivated in PBS

Table III C : Comparison of the potency of sample vaccine 10 % suspension using NSS and PBS as suspension media and inactivated by various methods.

Vaccine	Dilution	Survived	Died	Cumulative		Z Mortality	50 Z End point	Potency
				Survived	Died			
Laboratory Reference Standard	1:5	3	13	3	27	10	$10^{-1.54}$	0.6 IU/mL
	1:25	7	9	10	14	42		
	1:125	11	5	21	5	81		
	1:625	16	0	37	0	100		
B-PS	1:5	0	16	0	48	0	$10^{-2.47}$	5.13 IU/mL
	1:25	2	14	2	32	6		
	1:125	5	11	7	18	28		
	1:625	9	7	16	7	69		
P-PS	1:5	5	11	5	19	21	$10^{-1.16}$	0.25 IU/mL
	1:25	10	6	15	8	65		
	1:125	14	2	29	2	94		
	1:625	16	0	45	0	100		
H-NS	1:5	0	16	0	41	0	$10^{-2.21}$	2.80 IU/mL
	1:25	3	13	3	25	11		
	1:125	6	10	9	12	42		
	1:625	14	2	23	2	92		
B-NS	1:5	1	15	1	47	2	$10^{-2.43}$	4.67 IU/mL
	1:25	2	14	3	32	9		
	1:125	4	12	7	18	28		
	1:625	10	6	17	6	74		
P-NS	1:5	4	12	4	18	18	$10^{-1.12}$	0.23 IU/mL
	1:25	11	5	15	6	71		
	1:125	15	1	30	1	97		
	1:625	16	0	46	0	100		
H-NS	1:5	1	15	1	40	2	$10^{-2.20}$	2.72 IU/mL
	1:25	4	12	5	25	17		
	1:125	5	11	10	13	43		
	1:625	14	2	24	2	92		

Remark : Virus Titre = $10^{-6.45}$

B-NS = Betapropiolactone inactivated in normal saline (NSS)

B-PS = Betapropiolactone inactivated in phosphate buffer saline (PBS)

H-NS = Heat inactivated in NSS

H-PS = Heat inactivated in PBS

P-NS = Phenol inactivated in NSS

P-PS = Phenol inactivated in PBS

Table III D : Comparison of the potency of semple vaccine 10^{6.45} suspension using NSS and PBS as suspension media and inactivated by various methods.

Vaccine	Dilution	Survived	Died	Cummulative		%	50 % End point	Potency
				Survived	Died			
Laboratory Reference Standard	1:5	0	16	0	29	0	10 ^{-1.63}	0.6 IU/mL
	1:25	6	10	6	13	32		
	1:125	13	3	19	3	86		
	1:625	16	0	35	0	100		
B-PS	1:5	2	14	2	35	5	10 ^{-1.88}	1.07 IU/mL
	1:25	2	14	4	21	16		
	1:125	9	7	13	7	65		
P-PS	1:5	5	11	5	19	21	10 ^{-1.17}	0.21 IU/mL
	1:25	9	7	14	8	64		
	1:125	15	1	29	1	97		
H-PS	1:5	3	13	3	23	12	10 ^{-1.40}	0.35 IU/mL
	1:25	7	9	10	10	50		
	1:125	15	1	25	1	96		
B-NS	1:5	0	16	0	37	0	10 ^{-1.99}	1.25 IU/mL
	1:25	2	14	2	21	9		
	1:125	9	7	11	7	61		
P-NS	1:5	5	11	5	20	20	10 ^{-1.24}	0.24 IU/mL
	1:25	8	8	13	9	57		
	1:125	15	1	28	1	97		
H-NS	1:5	2	14	2	24	8	10 ^{-1.44}	0.48 IU/mL
	1:25	7	9	9	10	47		
	1:125	15	1	24	1	96		

Remark : Virus Titre = 10^{-6.45}

B-NS = Betapropiolactone inactivated in normal saline

B-PS = Betapropiolactone inactivated in phosphate buffer saline (PBS)

H-NS = Heat inactivated in NSS

H-PS = Heat inactivated in PBS

P-NS = Phenol inactivated in NSS

P-PS = Phenol inactivated in PBS

Table III E : Comparison of the potency of semple vaccine 10 % suspension using NSS
and PBS as suspension media and inactivated by various methods

Vaccine	Dilution	Survived	Died	Cumulative		Mortality %	50 % End point	Potency
				Survived	Died			
Laboratory Reference Standard	1:5	1	15	1	31	3	$10^{-1.72}$	0.6 IU/mL
	1:25	4	12	5	16	24		
	1:125	12	4	17	4	81		
	1:625	16	0	33	0	100		
B-PS	1:5	0	16	0	49	0	$10^{-2.49}$	3.56 IU/mL
	1:25	1	15	1	33	3		
	1:125	3	13	4	18	18		
	1:625	11	5	15	5	75		
P-PS	1:5	1	15	1	32	0	$10^{-1.75}$	0.64 IU/mL
	1:25	4	12	5	17	23		
	1:125	11	5	16	5	76		
	1:625	16	0	32	0	100		
H-PS	1:5	1	15	1	45	2	$10^{-2.37}$	2.68 IU/mL
	1:25	2	14	3	30	9		
	1:125	3	13	6	16	27		
	1:625	13	3	19	3	86		
B-NS	1:5	0	16	0	49	0	$10^{-2.48}$	3.45 IU/mL
	1:25	0	16	0	33	0		
	1:125	3	13	3	17	15		
	1:625	12	4	15	4	79		
P-NS	1:5	2	14	2	30	6	$10^{-1.69}$	0.56 IU/mL
	1:25	4	12	6	16	27		
	1:125	12	4	18	4	82		
	1:625	16	0	34	0	100		
H-NS	1:5	0	16	0	46	0	$10^{-2.39}$	2.81 IU/mL
	1:25	2	14	2	30	6		
	1:125	5	11	7	16	30		
	1:625	11	5	18	5	78		

Remark : Virus Titre = $10^{-6.5}$

B-NS = Betapropiolactone inactivated in normal saline (NSS)

B-PS = Betapropiolactone inactivated in phosphate buffer saline (PBS)

H-NS = Heat inactivated in NSS

H-PS = Heat inactivated in PBS

P-NS = Phenol inactivated in NSS

P-PS = Phenol inactivated in PBS

Table IV A : Comparison of the potency of 2 % suckling mouse brain vaccine (CVS Type) using NSS and PBS as suspension media and inactivated by various methods.

Vaccine	Dilution	Survived	Died	Cumulative		Z Mortality	50 Z End point	Potency
				Survived	Died			
Laboratory Reference Standard	1:5	1	15	1	33	3	$10^{-1.80}$	0.6 IU/mL
	1:25	4	12	5	18	22		
	1:125	10	6	15	6	71		
	1:625	16	0	31	0	100		
B-PS	1:5	6	10	6	19	24	$10^{-1.15}$	13.43×10^{-2} IU/mL
	1:25	10	6	16	9	64		
	1:125	13	3	29	3	91		
P-PS	1:5	4	12	4	18	24	$10^{-0.95}$	8.48×10^{-2} IU/mL
	1:25	15	1	19	1	95		
	1:125	16	0	35	0	100		
H-PS	1:5	6	10	6	15	29	$20^{-1.00}$	9.51×10^{-2} IU/mL
	1:25	12	4	18	5	78		
	1:125	15	1	33	1	97		
B-NS	1:5	6	10	6	18	25	$10^{-1.12}$	12.54×10^{-2} IU/mL
	1:25	10	6	16	8	67		
	1:125	14	2	30	2	94		
P-NS	1:5	4	12	4	13	24	$10^{-0.95}$	8.48×10^{-2} IU/mL
	1:25	15	1	19	1	95		
	1:125	16	0	35	0	100		
H-NS	1:5	5	11	5	16	24	$10^{-1.04}$	10.43×10^{-2} IU/mL
	1:25	12	4	17	5	77		
	1:125	15	1	32	1	97		

Remark : Virus Titre = $10^{-6.0}$

B-NS = Betapropiolactone inactivated in normal saline (NSS)

B-PS = Betapropiolactone inactivated in phosphate buffer saline (PBS)

H-NS = Heat inactivated in NSS

H-PS = Heat inactivated in PBS

P-NS = Phenol inactivated in NSS

P-PS = Phenol inactivated in PBS

Table IV B : Comparison of the potency of 2 % suckling mouse brain vaccine (PV-Type) using NSS and PBS as suspension media and in activated : by various methods.

Vaccine	Dilution	Survived	Died	Cumulative		%	50 % End point	Potency
				Survived	Died			
Laboratory Reference Standard	1:5	0	16	0	31	0	$10^{-1.72}$	0.6 IU/mL
	1:25	3	13	3	15	17		
	1:125	14	2	17	2	89		
	1:625	16	0	33	0	100		
B-PS	1:5	3	13	3	17	15	$10^{-1.08}$	13.75×10^{-2} IU/mL
	1:25	12	4	15	4	79		
	1:125	16	0	31	0	100		
P-PS	1:5	10	6	10	9	53	$10^{-0.66}$	4.35×10^{-2} IU/mL
	1:25	13	3	23	3	88		
	1:125	16	0	39	0	100		
H-PS	1:5	0	16	0	16	0	$10^{-1.07}$	13.43×10^{-2} IU/mL
	1:25	15	1	15	1	94		
	1:125	16	0	16	0	100		
B-NS	1:5	3	13	3	17	15	$10^{-1.08}$	13.75×10^{-2} IU/mL
	1:25	12	4	15	4	79		
	1:125	16	0	31	0	100		
P-NS	1:5	10	6	10	10	50	$10^{-0.70}$	5.73×10^{-2} IU/mL
	1:25	13	3	23	4	85		
	1:125	15	1	38	1	97		
H-NS	1:5	0	16	0	17	0	$10^{-1.07}$	13.43×10^{-2} IU/mL
	1:25	15	1	15	1	94		
	1:125	16	0	31	0	100		

Remark : Virus Titre = $10^{-5.8}$

B-NS = Betapropiolactone inactivated in normal saline (NSS)

B-PS = Betapropiolactone inactivated in phosphate buffer saline (PBS)

H-NS = Heat inactivated in NSS

H-PS = Heat inactivated in PBS

P-NS = Phenol inactivated in NSS

P-PS = Phenol inactivated in PBS

Table VA : Comparison of the stability of 2 % suckling mouse brain (CVS) by incubating at 37°C, 12 Days (Accelerate degradation Test)

Vaccine	Dilution	Survived	Died	Cumulative		Z Mortality	50 Z End point	Potency
				Survived	Died			
Laboratory Reference Standard	1:5	1	15	1	31	3	10 ^{-1.72}	0.6 IU/mL
	1:25	5	11	6	16	27		
	1:125	11	5	17	5	77		
	1:625	16	0	33	0	100		
B-PS	1:5	12	4	12	4	75	10 ^{-0.47}	3.37 x 10 ⁻² IU/mL
	1:25	16	0	18	0	100		
	1:125	16	0	44	0	100		
P-PS	1:5	15	1	15	1	94	10 ^{-0.37}	2.80 x 10 ⁻² IU/mL
	1:25	16	0	31	0	100		
	1:125	16	0	47	0	100		
H-PS	1:5	10	6	10	6	63	10 ^{-0.55}	4.06 x 10 ⁻² IU/mL
	1:25	16	0	26	0	100		
	1:125	16	0	42	0	100		
B-NS	1:5	12	4	12	5	71	10 ^{-0.49}	3.53 x 10 ⁻² IU/mL
	1:25	15	1	27	1	96		
	1:125	16	0	43	0	100		
P-NS	1:5	15	1	15	2	88	10 ^{-0.40}	2.87 x 10 ⁻² IU/mL
	1:25	15	1	30	1	97		
	1:125	16	0	46	0	100		
H-NS	1:5	12	4	12	5	71	10 ^{-0.49}	3.53 x 10 ⁻² IU/mL
	1:25	15	1	27	1	96		
	1:125	16	0	43	0	100		

Remark : Virus Titre = 10^{-6.0}

B-NS = Betapropiolactone inactivated in normal saline (NSS)

B-PS = Betapropiolactone inactivated in phosphate buffer saline (PBS)

H-NS = Heat inactivated in NSS

H-PS = Heat inactivated in PBS

P-NS = Phenol inactivated in NSS

P-PS = Phenol inactivated in PBS

Table VB : Comparison of the stability of 2 ½ suckling mouse brain (PV), by incubating at 37°C, 12 Days (Accelerate degradation test)

Vaccine	Dilution	Survived	Died	Cumulative		Mortality %	50 % End point	Potency
				Survived	Died			
Laboratory Reference Standard	1:5	1	15	1	31	3	10 ^{-1.72}	0.6 IU/mL
	1:25	5	11	6	16	27		
	1:125	11	5	17	5	77		
	1:625	16	0	33	0	100		
B-PS	1:5	8	8	8	11	42	10 ^{-0.82}	7.55 x 10 ⁻² IU/mL
	1:25	13	3	21	0	88		
	1:125	16	0	37	0	100		
P-PS	1:5	12	4	12	5	71	10 ^{-0.49}	3.53 x 10 ⁻² IU/mL
	1:25	15	1	27	1	96		
	1:125	16	0	43	0	100		
H-PS	1:5	10	6	10	8	56	10 ^{-0.64}	4.99 x 10 ⁻² IU/mL
	1:25	14	2	24	2	92		
	1:125	16	0	40	0	100		
B-NS	1:5	7	9	7	12	37	10 ^{-0.88}	8.67 x 10 ⁻² IU/mL
	1:25	13	3	20	3	87		
	1:125	16	0	36	0	100		
P-NS	1:5	13	3	13	4	76	10 ^{-0.46}	3.30 x 10 ⁻² IU/mL
	1:25	15	1	28	1	97		
	1:125	16	0	44	0	100		
H-NS	1:5	9	7	9	9	50	10 ^{-0.70}	5.73 x 10 ⁻² IU/mL
	1:25	14	2	23	2	92		
	1:125	16	0	39	0	100		

Remark : Virus Titre = 10^{-5.8}

B-NS = Betapropiolactone inactivated in normal saline (NSS)

B-PS = Betapropiolactone inactivated in phosphate buffer saline (PBS)

H-NS = Heat inactivated in NSS

H-PS = Heat inactivated in PBS

P-NS = Phenol inactivated in NSS

P-PS = Phenol inactivated in PBS

Table VI Statistical Test in potency of semple vaccine.

Suspension Method of Inactivation	NSS	PBS	Total
BPL	0.49, 0.17, 3.53, 4.67, 1.25	0.44, 0.16, 3.45, 5.13, 1.07	20.36
Phenol	0.27, 0.07, 0.64, 0.23, 0.24	0.24, 0.08, 0.56, 0.25, 0.21	2.97
Heat	0.40, 0.13, 2.68, 2.72, 0.48	0.42, 0.13, 2.81, 2.80, 0.35	12.92
Total	17.97	18.1	36.07

Statistical Difference	BPL VS Phenol VS Heat	BPL VS Phenol	Phenol VS Heat	Heat VS BPL	NSS VS PBS
F - Test	Significant At 0.05 P 0.01	-	-	-	No Significant At P 0.05
T - Test	-	Significant At P 0.05	Significant At P 0.05	Significant At P 0.05	-

Table VII Statistical Test in potency of 2 % SMB

Suspension Method of Inactivation	NSS	PBS	Total
BPL	12.54×10^{-2} , 13.75×10^{-2}	13.43×10^{-2} , 13.75×10^{-2}	53.47×10^{-2}
Phenol	8.48×10^{-2} , 5.73×10^{-2}	8.48×10^{-2} , 4.35×10^{-2}	27.04×10^{-2}
Heat	10.43×10^{-2} , 13.43×10^{-2}	9.51×10^{-2} , 13.43×10^{-2}	46.80×10^{-2}
Total	64.36×10^{-2}	62.95×10^{-2}	127.31×10^{-2}

Statistical Difference	BPL VS Phenol VS Heat	BPL VS Phenol	Phenol VS Heat	Heat VS BPL	NSS VS PBS
F - Test	High Significant At P 0.01	-	-	-	No Significant At P 0.05
T - Test	-	Significant At P-	Significant At P	Significant At 1	-

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Table VIII : Statistical test in the stability of 2 % SMB (PV and CVS) in NSS and PBS as suspension media (by accelerate degradation test).

Medium No.	NSS	PBS
1	3.53×10^{-2}	3.37×10^{-2}
2	8.67×10^{-2}	7.55×10^{-2}
3	2.87×10^{-2}	2.80×10^{-2}
4	3.30×10^{-2}	3.53×10^{-2}
5	3.53×10^{-2}	4.06×10^{-2}
6	5.73×10^{-2}	4.99×10^{-2}
Total	27.63×10^{-2}	26.3×10^{-2}
\bar{X} Score	4.605×10^{-2}	4.383×10^{-2}

Statistical difference	NSS VS PBS
F Test	No significant at p 0.05



Table IX : Comparison of the potency of 3 % lyophilized suckling brain vaccine (CVS)
in various stabilizers

Vaccine	Dilution	Survived	Died	Cumulative		Mortality %	50 % End point	Potency
				Survived	Died			
Laboratory Reference Standard	1:5 1:25 1:125 1:625	0 0 5 13	16 16 11 3	0 0 5 18	46 30 14 3	0 0 26 86	$10^{-2.38}$	0.6 IU/mL
Sucrose saline Kept at 4°C 1 month	1:5 1:25 1:125 1:625	0 0 2 8	16 16 14 8	0 0 2 10	54 38 22 8	0 0 8 55	$10^{-2.72}$	1.31 IU/mL
Lactose saline Kept at 4°C 1 month	1:5 1:25 1:125 1:625	0 0 2 8	16 16 14 8	0 0 2 10	54 38 22 8	0 0 8 55	$10^{-2.72}$	1.31 IU/mL
Dextran saline Kept at 4°C 1 month	1:5 1:25 1:125 1:625	5 14 15 16	11 2 1 0	5 19 34 50	14 3 1 0	26 86 97 100	$10^{-0.98}$	0.02 IU/mL
Sucrose saline Kept at 37°C 1 month	1:5 1:25 1:125 1:625	2 3 8 14	14 13 8 2	2 5 13 27	37 23 10 2	5 18 57 93	$10^{-1.97}$	0.21 IU/mL
Lactose saline Kept at 37°C 1 month	1:5 1:25 1:125 1:625	13 14 16 16	3 2 0 0	13 27 43 59	5 2 0 0	72 93 100 100	$10^{-0.49}$	0.01 IU/mL
Dextran saline Kept at 37°C 1 month	1:5 1:25 1:125 1:625	14 15 16 16	2 1 0 0	14 29 45 61	3 1 0 0	82 97 100 100	$10^{-0.43}$	0.01 IU/mL

Remark : Virus titre = $10^{-6.0}$