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APPENDICES

APPENDIX A

TABLES

Table 1 : Three Methods for choosing titration data ranges for data analysis.

Method	Range
A	maximum pH of weaker acid.
B	For Ve_A : maximum pH of acid A For Ve_B : maximum pH of acid B
C	maximum F value.

Table 2. The comparison between the calculated equivalent volume obtained from solving the modified equation and the theoretical equivalent volume taken into the polynomial equation in the step of data simulation at the difference of pKa, ΔpKa and the initial concentration ratios of both acid A and acid B.

ΔpKa	pKa		Initial concentration	Theoretical equivalent volume		Calculated equivalent volume	
	pKa1	pKa2	ratio (X)*	Ve_A	Ve_B	Ve_A	Ve_B
5	4.00	9.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
4	4.00	8.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	5.00	9.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
3	4.00	7.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	5.00	8.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	6.00	9.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
2.5	4.00	6.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	5.00	7.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	6.00	8.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	7.00	9.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
2	4.00	6.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	5.00	7.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	6.00	8.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	7.00	9.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
1.5	4.00	5.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	5.00	6.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	6.00	7.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	7.00	8.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	8.00	9.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
1	4.00	5.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	5.00	6.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	6.00	7.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	7.00	8.00	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√

Table 2 (continue).

ΔpKa	pKa		Initial concentration	Theoretical equivalent volume		Calculated equivalent volume	
	pKa1	pKa2	ratio (X)*	Ve_A	Ve_B	Ve_A	Ve_B
0.5	4.00	4.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	5.00	5.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	6.00	6.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	7.00	7.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	8.00	8.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	9.00	9.50	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
0.2	4.00	4.20	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	5.00	5.20	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	6.00	6.20	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	7.00	7.20	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	8.00	8.20	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√
	9.00	9.20	$2x10^{-4}$ to $5x10^{3}$	√	√	√	√

* *Initial concentration ratio (X) = Co_B /Co_A or Ve_B /Ve_A.*

√ *The calculated equivalent volume obtained from multiple linear regression analysis equals to the theoretical equivalent volume taken into the polynomial equation in the step of data simulation.*

Table 3 : The dissociation constant (Ka) and pKa of weak acidic compounds.

Weak acids	Ka*	pKa*
Benzoic acid	$8.33 \times 10^{-5} \pm 3.87 \times 10^{-6}$	4.08 ± 0.02
Pivalic acid	$9.77 \times 10^{-6} \pm 4.37 \times 10^{-7}$	5.01 ± 0.02
p-Nitrophenol	$8.97 \times 10^{-8} \pm 4.59 \times 10^{-9}$	7.05 ± 0.02
Pralidoxime chloride	$1.10 \times 10^{-8} \pm 5.29 \times 10^{-10}$	7.96 ± 0.02
Lidocaine hydrochloride	$1.18 \times 10^{-8} \pm 8.35 \times 10^{-10}$	7.93 ± 0.03
Boric acid	$7.87 \times 10^{-10} \pm 4.57 \times 10^{-11}$	9.10 ± 0.03
Procaine hydrochloride	$8.93 \times 10^{-10} \pm 6.12 \times 10^{-11}$	9.05 ± 0.03

* *Ka and pKa values were obtained from the slope of G plots of each single weak acid titrations at 28 degree cencius in 0.1 M potassium chloride..*

Table 4 : The mixture of weak acids and their ΔpKa.

Weak acidic mixtures	ΔpKa	pKa_A, pKa_B
1. Neutral weak acid + Neutral weak acid		
Benzoic acid + Pivalic acid	0.93	4.08, 5.01
Benzoic acid + *p*-nitrophenol	2.97	4.08, 7.05
Benzoic acid + Boric acid	5.02	4.08, 9.10
Pivalic acid + *p*-nitrophenol	2.04	5.01, 7.05
Pivalic acid + Boric acid	4.09	5.01, 9.10
p-nitrophenol + Boric acid	2.05	7.05, 9.10
2. Neutral weak acid + Ionized weak acid		
Benzoic acid + Pralidoxime chloride	3.88	4.08, 7.96
Pivalic acid + Pralidoxime chloride	2.95	5.01, 7.96
p-nitrophenol + Pralidoxime chloride	0.91	7.05, 7.96
Pralidoxime chloride + Boric acid	1.14	7.96, 9.10
3. Ionized weak acid + Ionized weak acid		
Lidocaine HCl + Procaine HCl	1.12	7.93, 9.05

Table 5 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pivalic acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	1.96	1.96	1.96	1.96
2	1.97	1.99	1.99	1.98
3	1.97	1.96	1.96	1.94
4	1.97	1.99	1.99	1.99
5	1.97	1.96	1.96	1.94
Mean	1.97	1.97	1.97	1.96
S.D.X10^2	0.40	1.47	1.47	2.04

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 6 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pivalic acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.95	1.87	1.95	1.86
2	1.95	1.84	1.95	1.85
3	1.95	1.86	1.95	1.88
4	1.96	1.84	1.95	1.85
5	1.97	1.86	1.97	1.89
Mean	1.96	1.85*	1.95	1.87*
S.D.X10^2	8.00	1.20	8.00	1.62

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 7 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pivalic acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	9.74	9.76	9.76	9.76
2	9.71	9.73	9.73	9.73
3	9.71	9.73	9.73	9.73
4	9.75	9.76	9.76	9.76
5	9.78	9.76	9.76	9.76
Mean	9.74	9.75	9.75	9.75
S.D.X10^2	2.64	1.47	1.47	1.47

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 8 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pivalic acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.95	1.65	1.95	1.71
2	1.95	1.67	1.95	1.70
3	1.95	1.70	1.96	1.75
4	1.96	1.67	1.97	1.70
5	1.97	1.60	1.94	1.68
Mean	1.96	1.65*	1.95	1.71*
S.D.X10^2	0.80	3.66	1.02	2.32

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 9 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pivalic acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	19.81	19.81	19.81	19.81
2	19.82	19.83	19.83	19.85
3	19.83	19.82	19.82	19.83
4	19.85	19.85	19.85	19.86
5	19.89	19.85	19.85	19.88
Mean	19.84	19.83	19.83	19.85
S.D.X10^2	2.83	1.60	1.60	2.42

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 10 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pivalic acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.95	1.88	1.97	1.88
2	1.95	1.82	1.95	1.82
3	1.95	1.81	1.95	1.80
4	1.96	1.86	1.98	1.85
5	1.97	1.83	1.96	1.84
Mean	1.96	1.84*	1.96	1.84*
S.D.X10^2	8.00	2.61	1.17	2.71

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 11 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pivalic acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	29.47	29.55	29.55	30.05
2	29.43.	29.56	29.56	30.09
3	29.48	29.59	29.59	30.06
4	29.53	29.55	29.55	30.01
5	29.56	29.54	29.54	30.05
Mean	29.49	29.56*	29.56*	30.05*
S.D.X10^2	4.59	1.72	1.72	2.56

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 12 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pivalic acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.94	1.92	2.09	1.72
2	1.95	1.90	2.05	1.70
3	1.96	1.93	2.02	1.71
4	1.97	1.91	2.06	1.76
5	1.97	1.93	2.05	1.74
Mean	1.96	1.92*	2.05*	1.73*
S.D.X10^2	1.17	1.17	2.24	2.15

* : *Statistical difference at 95 % confidence interval between theequivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 13 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pivalic acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	1.97	2.00	2.00	2.00
2	1.97	1.97	1.97	1.99
3	1.97	2.00	2.00	2.02
4	1.97	1.98	1.98	1.91
5	1.99	1.99	1.99	1.97
Mean	1.97	1.99	1.99	1.98
S.D.X10^2	0.80	1.17	1.17	3.76

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 14 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pivalic acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	3.92	3.75	3.92	3.75
2	3.93	3.79	3.93	3.77
3	3.93	3.76	3.92	3.74
4	3.93	3.73	3.93	3.71
5	3.93	3.77	3.94	3.80
Mean	3.93	3.76*	3.93	3.76*
S.D.X10^2	0.40	2.00	0.75	3.16

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 15 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of benzoic acid p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.85	1.89	1.89	1.89
2	1.86	1.88	1.88	1.88
3	1.87	1.87	1.87	1.87
4	1.87	1.85	1.85	1.86
5	1.90	1.87	1.87	1.87
Mean	1.87	1.87	1.87	1.87
S.D.X10^2	1.67	1.33	1.33	1.02

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 16 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.90	1.92	1.91	1.92
2	1.91	1.92	1.91	1.92
3	1.91	1.91	1.92	1.91
4	1.92	1.90	1.90	1.90
5	1.92	1.91	1.91	1.90
Mean	1.91	1.91	1.91	1.91
S.D.X10^2	0.75	0.75	6.32	0.89

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 17 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of benzoic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	9.16	9.20	9.20	9.20
2	9.17	9.19	9.19	9.19
3	9.18	9.19	9.19	9.19
4	9.20	9.18	9.18	9.18
5	9.20	9.17	9.17	9.17
Mean	9.18	9.19	9.19	9.19
S.D.X10^2	1.60	1.02	1.02	1.02

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 18 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.86	1.79	1.86	1.95
2	1.86	1.78	1.86	1.90
3	1.83	1.76	1.87	1.90
4	1.85	1.74	1.83	1.91
5	1.83	1.71	1.88	1.91
Mean	1.82	1.75*	1.86	1.91*
S.D.X10^2	1.67	2.87	1.67	1.85

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 19 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of benzoic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	18.25	18.21	18.21	18.21
2	18.30	18.26	18.26	18.26
3	18.30	18.28	18.28	18.25
4	18.30	18.29	18.29	18.21
5	18.25	18.29	18.29	18.26
Mean	18.28	18.27	18.27	18.24
S.D.X10^2	2.45	3.01	3.01	3.43

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 20 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.80	1.84	1.81	1.89
2	1.81	1.89	1.84	1.90
3	1.82	1.92	1.82	1.96
4	1.82	1.96	1.82	1.94
5	1.82	1.86	1.80	1.92
Mean	1.81	1.89*	1.82	1.92*
S.D.X10^2	0.80	4.27	1.33	2.56

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 21 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of benzoic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.85	1.85	1.85	1.84
2	1.86	1.87	1.87	1.85
3	1.87	1.88	1.88	1.84
4	1.87	1.87	1.87	1.87
5	1.90	1.86	1.86	1.89
Mean	1.87	1.87	1.87	1.86
S.D.X10^2	1.67	1.02	1.02	1.94

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 22 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	3.47	3.47	3.47	3.45
2	3.47	3.48	3.48	3.45
3	3.47	3.47	3.46	3.49
4	3.48	3.47	3.46	3.47
5	3.48	3.47	3.47	3.47
Mean	3.47	3.47	3.47	3.47
S.D.X10^2	0.49	0.40	0.75	1.50

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 23 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of benzoic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	1.90	1.91	1.91	1.91
2	1.93	1.90	1.90	1.86
3	1.93	1.92	1.92	1.89
4	1.93	1.93	1.93	1.89
5	1.89	1.92	1.92	1.93
Mean	1.92	1.92	1.92	1.90
S.D.X10^2	1.74	1.02	1.02	2.33

* *: Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 24 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.80	1.82	1.83	1.82
2	1.82	1.80	1.80	1.80
3	1.82	1.80	1.82	1.82
4	1.84	1.83	1.83	1.83
5	1.83	1.81	1.81	1.83
Mean	1.82	1.81	1.82	1.82
S.D.X10^2	1.33	1.17	1.17	1.10

* *: Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 25 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of benzoic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	9.90	9.91	9.91	9.88
2	9.91	9.95	9.95	9.90
3	9.93	9.93	9.93	9.89
4	9.94	9.95	9.95	9.91
5	9.95	9.92	9.92	9.85
Mean	9.93	9.93	9.93	9.89*
S.D.X10^2	1.85	1.60	1.60	2.06

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 26 : The equivalent volume of benzoic acid (ml) from the titration of singleacid solution and the solution of benzoic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.91	1.96	1.92	2.05
2	1.91	2.03	1.90	2.06
3	1.91	2.00	1.95	2.03
4	1.92	2.02	1.90	2.07
5	1.93	1.96	1.91	2.00
Mean	1.94	1.99*	1.92	2.04*
S.D.X10^2	8.00	2.94	1.85	2.48

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 27 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of benzoic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	18.84	18.84	18.84	18.84
2	18.75	18.89	18.89	18.89
3	18.76	18.80	18.80	18.82
4	18.79	18.82	18.82	18.82
5	18.82	18.88	18.88	18.88
Mean	18.79	18.85	18.85	18.85
S.D.X10^2	3.43	3.44	3.44	2.97

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 28 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.77	2.04	1.77	2.03
2	1.76	2.06	1.77	2.06
3	1.77	2.00	1.76	2.02
4	1.77	2.03	1.77	2.03
5	1.77	2.06	1.76	2.06
Mean	1.77	2.04*	1.77	2.04*
S.D.X10^2	0.40	2.23	4.90	1.67

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 29 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of benzoic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	29.58	29.88	29.88	29.88
2	29.58	29.98	29.98	29.98
3	29.60	29.88	29.88	29.88
4	29.62	29.85	29.85	29.85
5	29.63	29.83	29.83	29.83
Mean	29.60	29.88*	29.88*	29.88*
S.D.X10^2	2.04	5.16	5.16	5.16

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 30 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.94	2.94	1.93	2.94
2	1.95	3.11	1.93	3.11
3	1.96	3.02	1.92	3.02
4	1.97	2.86	1.93	2.85
5	1.96	3.00	1.92	3.00
Mean	1.96	2.99*	1.93	2.98*
S.D.X10^2	1.02	8.33	0.55	8.64

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 31 : The equivalent volume of boric acid (m l) from the titration of single acid solution and the solution of benzoic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	1.89	1.93	1.93	1.90
2	1.90	1.93	1.93	1.89
3	1.93	1.93	1.93	1.91
4	1.93	1.93	1.93	1.89
5	1.93	1.95	1.95	1.93
Mean	1.92	1.93	1.93	1.90
S.D.X10^2	1.74	0.80	0.80	1.50

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 32 : The equivalent volume of benzoic acid(ml) from the titration of single acid solution and the solution of benzoic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	3.47	3.42	3.42	3.45
2	3.47	3.47	3.45	3.47
3	3.46	3.46	3.44	3.46
4	3.48	3.46	3.48	3.48
5	3.48	3.48	3.47	3.48
Mean	3.47	3.44	3.45	3.47
S.D.X10^2	0.75	1.60	2.14	1.17

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 33 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of pivalic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.90	1.89	1.89	1.89
2	1.90	1.90	1.90	1.90
3	1.90	1.90	1.90	1.90
4	1.90	1.90	1.90	1.90
5	1.89	1.89	1.89	1.89
Mean	1.90	1.90	1.90	1.90
$S.D.X10^2$	0.40	0.49	0.49	0.49

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 34 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	1.84	1.83	1.85	1.83
2	1.84	1.83	1.84	1.83
3	1.86	1.84	1.83	1.84
4	1.86	1.81	1.81	1.81
5	1.86	1.81	1.86	1.81
Mean	1.85	1.82*	1.85	1.82*
$S.D.X10^2$	0.98	1.34	1.17	1.34

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 35 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of pivalic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	9.37	9.41	9.41	9.42
2	9.39	9.39	9.39	9.39
3	9.42	9.36	9.36	9.36
4	9.44	9.36	9.36	9.35
5	9.46	9.39	9.39	9.31
Mean	9.42	9.38	9.38	9.37
S.D.X10^2	3.26	1.94	1.94	3.72

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 36 : The equivalent volume of pivalic acid (ml) from the titration of singleacid solution and the solution of pivalic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	1.84	1.87	1.84	1.82
2	1.84	1.98	1.85	1.98
3	1.86	1.87	1.86	1.80
4	1.86	1.92	1.85	1.93
5	1.86	1.92	1.85	1.97
Mean	1.85	1.90*	1.85	1.90*
S.D.X10^2	0.98	5.85	6.32	7.56

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 37 : The equivalent volume of p-nitrophenol(ml) from the titration of single acid solution and the solution of pivalic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	15.11	15.12	15.12	15.10
2	15.12	15.13	15.13	15.13
3	15.13	15.18	15.18	15.18
4	15.14	15.14	15.14	15.14
5	15.16	15.12	15.12	15.12
Mean	15.13	15.13	15.13	15.13
S.D.X10^2	1.72	1.72	1.72	2.65

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 38 : The equivalent volume of pivalic acid (ml) from the titration of singleacid solution and the solution of pivalic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	1.88	2.33	1.86	2.42
2	1.88	2.33	1.89	2.33
3	1.86	2.30	1.89	2.30
4	1.86	2.32	1.86	2.31
5	1.86	2.38	1.87	2.38
Mean	1.87	2.33*	1.87	2.35*
S.D.X10^2	0.98	2.64	1.36	4.53

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 39 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of pivalic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.90	1.90	1.90	1.90
2	1.90	1.92	1.92	1.92
3	1.90	1.91	1.91	1.91
4	1.90	1.90	1.90	1.90
5	1.92	1.90	1.90	1.90
Mean	1.90	1.91	1.91	1.91
S.D.X10^2	0.80	0.80	0.80	0.80

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 40 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	9.00	8.99	8.99	8.99
2	8.96	8.67	9.00	8.95
3	8.97	8.84	8.91	8.94
4	8.99	8.78	8.90	8.91
5	8.95	8.78	8.93	8.90
Mean	8.97	8.81*	8.95	8.94*
S.D.X10^2	1.85	1.05	4.13	3.19

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 41 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of pivalic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.90	1.93	1.93	1.94
2	1.90	1.92	1.92	1.93
3	1.90	1.91	1.91	1.91
4	1.90	1.90	1.90	1.90
5	1.90	1.93	1.93	1.93
Mean	1.90	1.92*	1.92*	1.92*
S.D.X10^2	0.00	1.17	1.17	1.47

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 42 : The equivalent volume of pivalic acid (ml) from the titration of singleacid solution and the solution of pivalic acid -p-nitrophenol mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	18.52	18.82	18.55	18.81
2	18.53	18.84	18.53	18.83
3	18.53	18.84	18.55	18.84
4	18.55	18.85	18.52	18.85
5	18.57	18.92	18.57	18.92
Mean	18.54	18.77*	18.54	18.85*
S.D.X10^2	1.79	1.86	1.74	3.74

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 43 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of pivalic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	2.00	2.01	2.01	2.00
2	2.02	2.01	2.01	2.00
3	2.03	2.01	2.01	2.00
4	2.04	2.01	2.01	2.01
5	2.05	2.02	2.02	2.00
Mean	2.03	2.01	2.01	2.00
S.D.X10^2	1.72	0.40	0.40	0.40

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 44 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	1.96	1.98	1.98	1.99
2	1.97	1.97	1.97	1.98
3	1.97	1.95	1.96	1.96
4	1.97	1.97	1.97	1.97
5	1.97	1.93	1.94	1.94
Mean	1.97	1.96	1.96	1.97
S.D.X10^2	0.40	1.79	1.36	1.72

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 45 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of pivalic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	9.90	9.93	9.93	9.91
2	9.91	9.94	9.94	9.92
3	9.93	9.90	9.90	9.90
4	9.94	9.93	9.93	9.91
5	9.95	9.93	9.93	9.90
Mean	9.93	9.93	9.93	9.91
S.D.X10^2	1.85	1.36	1.36	0.75

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 46: The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid- boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	1.96	2.10	1.97	2.12
2	1.97	2.05	1.95	2.06
3	1.97	2.10	1.97	2.10
4	1.97	2.06	1.96	2.08
5	1.98	2.08	1.98	2.11
Mean	1.97	2.08*	1.97	2.09*
S.D.X10^2	0.63	2.04	1.02	2.15

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 47 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of pivalic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	19.56	19.57	19.57	19.59
2	19.57	19.59	19.59	19.58
3	19.57	19.61	19.61	19.63
4	19.59	19.60	19.60	19.62
5	19.60	19.56	19.56	19.55
Mean	19.58	19.59	19.59	19.59
S.D.X10^2	1.47	1.85	1.85	2.87

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 48 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	1.96	2.40	1.97	2.39
2	1.97	2.33	1.96	2.34
3	1.97	2.43	2.00	2.41
4	1.97	2.42	1.96	2.40
5	1.98	2.37	1.95	2.38
Mean	1.97	2.39*	1.97	2.39*
S.D.X10^2	0.63	3.63	1.72	2.42

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 49: The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of pivalic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	29.58	29.15	29.15	29.00
2	29.58	29.19	29.19	29.12
3	29.60	29.13	29.13	29.01
4	29.62	29.14	29.14	28.95
5	29.63	29.11	29.11	28.95
Mean	29.60	29.14*	29.14*	29.01*
S.D.X10^2	2.04	2.65	2.65	6.22

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 50 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	2.09	2.62	2.07	2.75
2	2.09	2.76	2.07	2.82
3	2.09	2.69	2.08	2.79
4	2.09	2.54	2.08	2.73
5	2.11	2.58	2.06	2.72
Mean	2.09	2.64*	2.07	2.76*
S.D.X10^2	0.94	7.86	0.84	3.76

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 51 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of pivalic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	2.00	2.03	2.03	2.01
2	2.02	2.04	2.04	2.01
3	2.03	2.05	2.05	2.03
4	2.04	2.04	2.04	2.03
5	2.05	2.03	2.03	2.00
Mean	2.03	2.04	2.04	2.02
S.D.X10^2	1.72	0.75	0.75	1.20

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 52 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	9.70	9.82	9.76	9.85
2	9.71	9.76	9.71	9.78
3	9.71	9.76	9.80	9.77
4	9.75	9.78	9.71	9.79
5	9.73	9.76	9.70	9.70
Mean	9.73	9.76*	9.74	9.78*
S.D.X10^2	3.03	4.00	3.83	4.79

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 53 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of pivalic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	1.93	2.10	2.10	2.10
2	1.94	2.10	2.10	2.10
3	1.95	2.03	2.03	2.03
4	1.95	2.05	2.05	2.07
5	1.97	2.08	2.08	2.08
Mean	1.95	2.07*	2.07*	2.08*
S.D.X10^2	1.33	2.79	2.79	2.58

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 54 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	18.81	19.08	18.83	19.08
2	18.81	19.00	18.82	19.00
3	18.81	18.82	18.84	18.99
4	18.82	19.02	18.80	19.01
5	18.84	19.05	18.81	19.04
Mean	18.82	18.99*	18.82	19.02*
S.D.X10^2	1.17	9.11	1.41	3.26

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 55 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	1.90	1.90	1.90	1.90
2	1.90	1.91	1.91	1.90
3	1.90	1.90	1.90	1.90
4	1.91	1.90	1.90	1.91
5	1.91	1.91	1.91	1.91
Mean	1.90	1.90	1.90	1.90
S.D.X10^2	0.49	0.49	0.49	0.49

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 56 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.85	1.78	1.81	1.80
2	1.86	1.78	1.88	1.78
3	1.87	1.74	1.89	1.76
4	1.87	1.76	1.87	1.78
5	1.90	1.77	1.86	1.79
Mean	1.87	1.77*	1.86	1.78*
S.D.X10^2	1.67	1.50	2.79	1.33

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 57: The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	9.10	9.15	9.15	9.10
2	9.11	9.16	9.16	9.15
3	9.13	9.12	9.12	9.14
4	9.14	9.13	9.13	9.11
5	9.18	9.16	9.16	9.11
Mean	9.13	9.14	9.14	9.12
S.D.X10^2	2.79	1.62	1.62	1.94

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 58 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.85	1.83	1.86	1.83
2	1.86	1.86	1.86	1.86
3	1.87	1.80	1.85	1.80
4	1.87	1.84	1.84	1.84
5	1.90	1.80	1.84	1.82
Mean	1.87	1.83*	1.85	1.83*
S.D.X10^2	1.67	2.33	0.89	2.00

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 59 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	18.99	18.97	18.97	18.98
2	18.86	18.99	18.99	18.93
3	18.91	18.89	18.89	18.91
4	18.95	18.93	18.93	18.91
5	18.97	18.93	18.93	18.91
Mean	18.94	18.94	18.94	18.93
S.D.X10^2	4.63	3.49	3.49	2.71

* : *Statistical difference at 95 % confidence interval between the equivalen volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 60 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.91	3.02	1.93	3.01
2	1.93	3.00	1.94	3.00
3	1.93	3.18	1.93	3.16
4	1.94	3.11	1.91	3.14
5	1.93	3.03	1.93	3.05
Mean	1.93	3.07*	1.93	3.07*
S.D.X10^2	0.98	6.73	0.98	6.62

* : *Statistical difference at 95 % confidence interval between the equivalet volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 61 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	29.58	28.97	28.97	28.87
2	29.58	28.94	28.94	28.94
3	29.60	28.83	28.83	28.76
4	29.62	28.80	28.80	28.77
5	29.63	28.86	28.86	28.85
Mean	29.60	28.88*	28.88*	28.84*
S.D.X10^2	2.04	6.48	6.48	6.68

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 62 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.97	3.09	2.23	3.16
2	1.97	3.02	2.21	3.02
3	1.97	3.01	2.21	3.01
4	1.97	3.05	2.23	3.10
5	1.98	3.05	2.23	3.05
Mean	1.97	3.04*	2.22*	3.07*
S.D.X10^2	0.40	2.80	0.98	5.56

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 63 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate nitial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	1.95	1.95	1.95	1.91
2	1.97	1.96	1.96	1.94
3	1.98	1.97	1.97	1.95
4	1.99	2.00	2.00	2.00
5	1.99	1.95	1.95	1.93
Mean	1.98	1.97	1.97	1.95
S.D.X10^2	1.50	1.85	1.85	3.01

* : *Statistical difference at 95 % confidence interval between the equivalentvolumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 64 : The equivalent volume of p-nitrophenol (ml) from the titration of singleacid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	9.20	9.11	9.20	9.17
2	9.20	9.15	9.19	9.15
3	9.18	9.15	9.17	9.15
4	9.17	9.15	9.17	9.15
5	9.16	9.16	9.18	9.18
Mean	9.18	9.17*	9.18	9.16*
S.D.X10^2	1.60	3.41	1.17	1.26

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 65 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	1.90	1.92	1.92	1.87
2	1.90	1.93	1.93	1.85
3	1.90	1.95	1.95	1.93
4	1.91	1.96	1.96	1.96
5	1.91	1.99	1.99	1.99
Mean	1.90	1.95*	1.95*	1.92*
S.D.X10^2	0.49	2.45	2.45	5.29

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 66 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of p-nitrophenol -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	16.96	16.95	16.96	16.95
2	16.96	16.94	17.00	17.00
3	16.98	16.95	16.96	16.98
4	17.01	16.93	16.98	16.96
5	17.06	16.95	17.03	16.95
Mean	16.99	16.94*	16.99	16.97*
S.D.X10^2	3.77	0.80	2.65	1.94

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 67 :The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of benzoic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	1.85	1.85	1.85	1.85
2	1.86	1.87	1.87	1.87
3	1.87	1.89	1.89	1.89
4	1.88	1.86	1.86	1.85
5	1.88	1.88	1.88	1.87
Mean	1.87	1.87	1.87	1.87
S.D.X10^2	1.17	1.41	1.41	1.50

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 68 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.81	1.81	1.81	1.81
2	1.82	1.82	1.81	1.82
3	1.82	1.83	1.82	1.83
4	1.81	1.82	1.82	1.81
5	1.81	1.81	1.81	1.82
Mean	1.81	1.82	1.82	1.82
S.D.X10^2	0.49	0.75	0.49	0.75

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 69 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of benzoic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	9.18	9.15	9.15	9.16
2	9.18	9.18	9.18	9.17
3	9.18	9.18	9.18	9.18
4	9.16	9.18	9.18	9.17
5	9.16	9.16	9.16	9.16
Mean	9.17	9.17	9.17	9.17
S.D.X10^2	0.98	1.26	1.26	0.75

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 70 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.95	1.66	1.95	1.65
2	1.95	1.33	1.94	1.34
3	1.95	1.41	1.97	1.45
4	1.96	1.54	1.95	1.55
5	1.97	1.57	1.96	1.58
Mean	1.96	1.50*	1.95	1.51*
S.D.X10^2	0.80	1.18	1.02	1.08

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 71 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of benzoic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	18.55	18.54	18.54	18.57
2	18.58	18.55	18.55	18.58
3	18.63	18.60	18.60	18.58
4	18.43	18.57	18.57	18.52
5	18.59	18.59	18.59	18.54
Mean	18.58	18.57	18.57	18.56
S.D.X10^2	3.19	2.28	2.28	2.40

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 72 : The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.81	1.71	1.86	1.70
2	1.82	1.72	1.87	1.71
3	1.86	1.73	1.86	1.70
4	1.82	1.70	1.85	1.72
5	1.86	1.71	1.86	1.71
Mean	1.83	1.71*	1.86	1.71*
S.D.X10^2	2.15	1.02	0.63	0.75

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 73 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of benzoic acid - pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	29.25	28.92	28.92	28.41
2	29.27	28.99	28.99	28.41
3	29.30	28.87	28.87	28.38
4	29.32	28.83	28.83	28.40
5	29.41	28.85	28.85	28.40
Mean	29.31	28.89*	28.89*	28.40*
S.D.X10^2	5.55	5.74	5.74	1.10

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 74 : the equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid - pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	1.94	1.66	1.94	1.98
2	1.95	1.69	1.99	2.03
3	1.96	1.60	1.96	2.00
4	1.97	1.60	1.97	2.03
5	1.97	1.63	1.95	2.02
Mean	1.96	1.64*	1.96	2.01*
S.D.X10^2	1.30	3.90	1.90	1.95

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 75 :The equivalent volume of pralidoxime chloride (ml) from the titration of single acid and the solution of benzoic acid- pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	1.85	1.85	1.85	1.83
2	1.86	1.86	1.86	1.83
3	1.87	1.88	1.88	1.87
4	1.88	1.88	1.88	1.87
5	1.88	1.87	1.87	1.88
Mean	1.87	1.87	1.87	1.86
S.D.X10^2	1.17	1.17	1.17	2.15

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 76: The equivalent volume of benzoic acid (ml) from the titration of single acid solution and the solution of benzoic acid- pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Benzoic acid	G plot	Method A	Method B	Method C
1	3.67	3.64	3.65	3.66
2	3.69	3.68	3.69	3.70
3	3.70	3.72	3.73	3.75
4	3.65	3.74	3.78	3.76
5	3.65	3.64	3.65	3.64
Mean	3.67	3.68	3.70	3.70
S.D.X10^2	2.04	4.08	4.98	4.75

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 77 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	1.83	1.88	1.88	1.85
2	1.84	1.88	1.88	1.88
3	1.86	1.87	1.87	1.87
4	1.87	1.87	1.87	1.85
5	1.87	1.84	1.84	1.83
Mean	1.85	1.87	1.87	1.86
S.D.X10^2	1.62	1.47	1.47	1.74

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 78 : The equivalent volume of pivalic acid (ml) from the titration of singleacid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	1.86	1.86	1.87	1.87
2	1.86	1.87	1.86	1.86
3	1.87	1.87	1.87	1.87
4	1.87	1.87	1.88	1.88
5	1.87	1.87	1.85	1.87
Mean	1.87	1.88	1.87	1.87
S.D.X10^2	0.49	0.80	1.02	0.63

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 79 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	9.40	9.42	9.42	9.38
2	9.43	9.42	9.42	9.40
3	9.44	9.37	9.37	9.37
4	9.38	9.38	9.38	9.38
5	9.36	9.40	9.40	9.34
Mean	9.40	9.40	9.40	9.37
S.D.X10^2	2.99	2.04	2.04	1.96

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 80 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	1.86	1.98	1.85	2.02
2	1.86	1.94	1.87	1.96
3	1.87	1.90	1.86	1.83
4	1.87	1.91	1.86	1.76
5	1.87	1.90	1.87	1.95
Mean	1.87	1.93*	1.86	1.90*
S.D.X10^2	0.49	3.07	0.75	9.48

* : *Statistical difference at 95 % confidence interval betweentheequivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 81 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution(X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	18.01	18.03	18.03	18.03
2	18.00	18.02	18.02	18.02
3	18.05	18.06	18.06	18.06
4	18.04	18.01	18.01	18.01
5	18.02	18.00	18.00	18.01
Mean	18.02	18.02	18.02	18.02
S.D.X10^2	1.85	2.06	2.06	2.06

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 82 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) =10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	1.86	1.93	1.88	1.94
2	1.86	1.97	1.87	1.97
3	1.87	1.91	1.86	1.91
4	1.87	1.93	1.86	1.94
5	1.87	1.94	1.85	1.93
Mean	1.87	1.94*	1.86	1.94*
S.D.X10^2	0.49	1.96	1.10	1.71

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 83 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	29.25	29.23	29.23	28.96
2	29.27	29.22	29.22	28.97
3	29.30	29.12	29.12	28.96
4	29.32	29.10	29.10	28.90
5	29.29	29.21	29.21	28.97
Mean	29.29	29.18*	29.18*	28.95*
S.D.X10^2	2.42	5.46	5.46	2.64

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 84 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	2.09	2.03	2.07	2.24
2	2.09	2.07	2.08	2.26
3	2.09	2.01	2.07	2.20
4	2.09	2.05	2.08	2.20
5	2.11	2.05	2.08	2.24
Mean	2.09	2.04*	2.08*	2.28*
S.D.X10^2	0.89	2.04	0.55	2.40

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 85 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	1.83	1.87	1.87	1.87
2	1.84	1.88	1.88	1.88
3	1.86	1.87	1.87	1.87
4	1.87	1.87	1.87	1.87
5	1.87	1.86	1.86	1.86
Mean	1.85	1.87	1.87	1.87
S.D.X10^2	1.62	0.63	0.63	0.63

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 86 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	9.25	9.27	9.26	9.27
2	9.26	9.33	9.25	9.33
3	9.26	9.35	9.26	9.35
4	9.27	9.29	9.28	9.15
5	9.28	9.29	9.27	9.13
Mean	9.26	9.31*	9.26	9.25*
S.D.X10^2	1.02	2.94	1.02	9.07

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 87 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	1.83	1.93	1.93	1.93
2	1.84	1.92	1.92	1.92
3	1.86	1.93	1.93	1.93
4	1.86	1.95	1.95	1.95
5	1.87	1.94	1.94	1.94
Mean	1.85	1.93*	1.93*	1.93*
S.D.X10^2	1.62	1.02	1.02	1.02

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 88 : The equivalent volume of pivalic acid (ml) from the titration of single acid solution and the solution of pivalic acid -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pivalic acid	G plot	Method A	Method B	Method C
1	18.67	18.88	18.69	18.88
2	18.67	18.88	18.67	18.88
3	18.68	18.86	18.67	18.86
4	18.68	18.81	18.66	18.80
5	18.61	18.84	18.67	18.84
Mean	18.67	18.85*	18.67	18.85*
S.D.X10^2	0.75	2.65	1.02	2.99

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 89 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	1.94	1.94	1.94	1.95
2	1.94	1.94	1.94	1.94
3	1.95	1.95	1.95	1.95
4	1.96	1.94	1.94	1.94
5	1.94	1.94	1.94	1.95
Mean	1.95	1.94	1.94	1.95
S.D.X10^2	0.80	0.40	0.40	0.49

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 90 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.91	1.90	1.90	1.89
2	1.93	1.91	1.92	1.92
3	1.93	1.90	1.90	1.90
4	1.93	1.91	1.93	1.93
5	1.94	1.90	1.90	1.89
Mean	1.93	1.90*	1.91	1.91*
S.D.X10^2	0.98	0.49	1.26	1.62

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 91 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	9.54	9.51	9.51	9.51
2	9.55	9.57	9.57	9.57
3	9.56	9.55	9.55	9.58
4	9.56	9.52	9.52	9.50
5	9.58	9.56	9.56	9.51
Mean	9.56	9.54	9.54	9.53
S.D.X10^2	1.33	2.32	2.32	3.38

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 92 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.91	1.90	1.95	1.97
2	1.93	1.86	1.93	1.85
3	1.93	1.91	1.90	1.91
4	1.93	1.91	1.91	1.98
5	1.94	1.85	1.93	1.92
Mean	1.93	1.90*	1.92	1.93*
S.D.X10^2	0.98	4.59	1.74	4.67

* : *Statistical difference at 95 % confidence interval betweenthe equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 93 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	18.92	19.12	19.12	19.12
2	19.06	19.07	19.07	19.07
3	19.07	19.10	19.10	19.09
4	19.12	19.09	19.09	19.16
5	19.16	19.16	19.16	19.16
Mean	19.07	19.11	19.11	19.12
S.D.X10^2	8.14	3.06	3.06	3.63

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 94 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.91	1.52	1.92	1.52
2	1.93	1.58	1.93	1.58
3	1.93	1.51	1.90	1.51
4	1.93	1.57	1.92	1.52
5	1.94	1.53	1.92	1.53
Mean	1.93	1.54*	1.92	1.53*
S.D.X10^2	0.98	2.79	0.98	2.48

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 95 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	29.25	28.91	28.91	28.91
2	29.27	28.70	28.70	28.70
3	29.30	28.71	28.71	28.71
4	29.32	28.90	28.90	28.90
5	29.29	28.71	28.71	28.71
Mean	29.29	28.79*	28.79*	28.79*
S.D.X10^2	2.42	9.78	9.83	9.73

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 96 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 15.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	1.70	2.53	2.58	2.53
2	1.70	2.82	2.61	2.82
3	1.70	2.80	2.60	2.80
4	1.70	2.55	2.62	2.55
5	1.80	2.78	2.58	2.78
Mean	1.97	2.67*	2.60*	2.70*
S.D.X10^2	0.40	1.28	1.60	1.28

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 97 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	1.91	1.95	1.95	1.95
2	1.92	1.95	1.95	1.96
3	1.93	1.90	1.90	1.90
4	1.93	1.90	1.90	1.91
5	1.93	1.91	1.91	1.91
Mean	1.92	1.92	1.92	1.93
S.D.X10^2	0.80	2.32	2.32	2.42

* : *Statistical difference at 95 % confidence interval between the equivalent volume obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 98 : The equivalent volume of p-nitrophenol (ml) from the titration of single acid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	9.50	9.84	9.55	9.84
2	9.52	9.66	9.52	9.65
3	9.52	9.62	9.53	9.62
4	9.54	9.80	9.55	9.79
5	9.55	9.64	9.52	9.64
Mean	9.53	9.71*	9.53	9.71*
S.D.X10^2	1.74	9.00	1.36	7.70

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 99 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	1.91	2.01	2.01	2.01
2	1.92	2.01	2.01	2.01
3	1.93	2.00	2.00	1.98
4	1.93	2.03	2.03	2.03
5	1.93	2.01	2.01	2.01
Mean	1.92	2.01*	2.01*	2.01*
S.D.X10^2	0.80	0.98	0.98	1.60

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 100 : The equivalent volume of p-nitrophenol (ml) from the titration of singleacid solution and the solution of p-nitrophenol -pralidoxime chloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.1.

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Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
p-Nitrophenol	G plot	Method A	Method B	Method C
1	16.96	16.96	16.93	16.96
2	16.96	16.97	17.01	16.97
3	16.98	16.94	17.10	16.94
4	17.01	16.95	16.97	16.95
5	17.06	16.95	16.93	16.95
Mean	17.00	16.97*	16.99	16.97*
S.D.X10^2	3.77	2.87	6.34	2.87

* : *Statistical difference at 95 % confidence intervalbetweenthe equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 101 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of pralidoxime chloride -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	1.95	1.97	1.97	1.91
2	1.97	1.97	1.97	1.94
3	1.98	1.95	1.95	1.95
4	1.99	1.97	1.97	1.93
5	1.99	1.95	1.95	1.92
Mean	1.98	1.96	1.96	1.93
S.D.X10^2	1.50	0.98	0.98	1.41

* : *Statistical difference at 95 % confidenceintervalbetweentheequivalen tvolumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 102 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pralidoxime chloride -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) =1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	1.85	1.82	1.84	1.88
2	1.86	1.83	1.86	1.86
3	1.87	1.82	1.88	1.89
4	1.88	1.84	1.88	1.89
5	1.88	1.84	1.88	1.91
Mean	1.87	1.84*	1.87	1.89*
S.D.X10^2	1.17	2.28	1.60	1.62

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 103 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of pralidoxime chloride -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	5.72	5.73	5.73	5.73
2	5.72	5.75	5.75	5.75
3	5.75	5.76	5.76	5.77
4	5.77	5.77	5.77	5.76
5	5.77	5.75	5.75	5.75
Mean	5.75	5.75	5.75	5.75
S.D.X10^2	2.24	1.33	1.33	1.33

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 104 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pralidoxime chloride -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	5.69	5.37	5.72	5.47
2	5.70	5.33	5.70	5.42
3	5.71	5.33	5.71	5.39
4	5.72	5.33	5.75	5.41
5	5.76	5.32	5.72	5.47
Mean	5.72	5.33*	5.72	5.43*
S.D.X10^2	2.42	1.74	1.67	3.25

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 105 : The equivalent volume of boric acid(ml) from the titration of single acid solution and the solution of pralidoxime chloride -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	9.62	9.39	9.39	9.38
2	9.62	9.40	9.40	9.45
3	9.63	9.39	9.39	9.39
4	9.66	9.41	9.41	9.42
5	9.66	9.43	9.43	9.44
Mean	9.64	9.40*	9.40*	9.42*
S.D.X10^2	1.83	1.50	1.50	2.73

* : *atistical difference at 95 % confidence interval between the equivale volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 106 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pralidoxime chloride -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	1.91	2.56	1.93	2.56
2	1.92	2.57	1.96	2.54
3	1.93	2.37	1.94	2.37
4	1.93	2.40	1.91	2.37
5	1.93	2.37	1.94	2.34
Mean	1.92	2.45*	1.94	2.44*
S.D.X10^2	0.80	9.13	1.62	9.39

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 107 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of pralidoxime chloride -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	19.02	18.45	18.45	18.26
2	19.10	18.48	18.48	18.22
3	19.13	18.41	18.41	18.32
4	19.14	18.40	18.40	18.24
5	19.17	18.43	18.43	18.30
Mean	19.11	18.43*	18.43*	18.27*
S.D.X10^2	5.11	2.87	2.87	3.17

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 108 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pralidoxime chloride -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 10.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime chloride	G plot	Method A	Method B	Method C
1	1.91	2.40	1.90	2.54
2	1.92	2.40	1.96	2.58
3	1.93	2.56	1.97	2.62
4	1.93	2.65	1.92	2.69
5	1.93	2.66	1.91	2.69
Mean	1.92	2.53*	1.93	2.62*
S.D.X10^2	0.80	1.15	2.79	5.95

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 109 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of pralidoxime chloride -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	2.00	2.00	2.00	2.00
2	1.97	1.99	1.99	1.99
3	1.98	2.02	2.02	2.02
4	1.99	1.99	1.99	1.97
5	1.99	1.99	1.99	2.02
Mean	1.99	2.00	2.00	2.00
S.D.X10^2	1.02	1.17	1.17	1.90

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 110 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pralidoxime chloride -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.2.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime Cl	G plot	Method A	Method B	Method C
1	9.29	9.34	9.28	9.30
2	9.30	9.34	9.33	9.25
3	9.31	9.35	9.33	9.32
4	9.33	9.35	9.32	9.31
5	9.33	9.35	9.30	9.31
Mean	9.31	9.35*	9.31	9.30*
S.D.X10^2	1.60	0.49	1.94	2.48

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 111 : The equivalent volume of boric acid (ml) from the titration of single acid solution and the solution of pralidoxime chloride -boric acid mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Boric acid	G plot	Method A	Method B	Method C
1	1.95	2.29	2.29	2.29
2	1.97	2.32	2.32	2.31
3	1.98	2.25	2.25	2.26
4	1.99	2.25	2.25	2.23
5	1.99	2.23	2.23	2.34
Mean	1.98	2.27*	2.27*	2.29*
S.D.X10^2	1.50	3.25	3.25	3.83

* : *Statistical difference at 95 % confidenceintervalbetweentheequivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 112 : The equivalent volume of pralidoxime chloride (ml) from the titration of single acid solution and the solution of pralidoxime chloride-boric acid mixture.
: The approximate nitial concentration ratio of the mixture solution (X) = 0.1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Pralidoxime Cl	G plot	Method A	Method B	Method C
1	18.90	19.00	18.90	18.88
2	18.89	19.05	18.86	19.06
3	18.92	19.01	18.94	19.01
4	18.92	19.02	18.92	18.80
5	18.94	19.00	18.92	18.97
Mean	18.91	19.02*	18.90	18.94*
S.D.X10^2	1.74	1.85	2.71	9.31

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 113 : The equivalent volume of procaine hydrochloride (ml) from the titration of single acid solution and the solution of lidocaine hydrochloride -procaine hydrochloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Procaine hydrochloride	G plot	Method A	Method B	Method C
1	1.92	1.91	1.91	1.91
2	1.91	1.92	1.92	1.93
3	1.92	1.92	1.92	1.92
4	1.92	1.92	1.92	1.92
5	1.93	1.91	1.91	1.91
Mean	1.92	1.92	1.92	1.92
S.D.X10^2	0.71	0.55	0.55	0.84

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 114 : The equivalent volume of lidocaine hydrochloride (ml) from the titration of single acid solution and the solution of lidocaine hydrochloride -procaine hydrochloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 1.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Lidocaine hydrochloride	G plot	Method A	Method B	Method C
1	1.77	1.72	1.77	1.72
2	1.77	1.72	1.78	1.72
3	1.77	1.71	1.76	1.71
4	1.78	1.70	1.77	1.70
5	1.78	1.71	1.77	1.71
Mean	1.77	1.71*	1.77	1.71*
S.D.X10^2	0.55	0.84	0.71	0.84

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 115 : The equivalent volume of procaine hydrochloride (ml) from the titration of single acid solution and the solution of lidocaine hydrochloride -procaine hydrochloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Procaine hydrochloride	G plot	Method A	Method B	Method C
1	9.49	-	-	-
2	9.48	-	-	-
3	9.49	-	-	-
4	9.48	-	-	-
5	9.48	-	-	-
Mean	9.48	-	-	-
S.D.X10^2	0.55	-	-	-

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

\- : *not determine ,the results from the titration of binary weak acid mixturwe could not be found by using multiple linear regression analysis since precipitation occur.*

Table 116 : The equivalent volume of lidocaine hydrochloride (ml) from the titration of single acid solution and the solution of lidocaine hydrochloride -procaine hydrochloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Lidocaine hydrochloride	G plot	Method A	Method B	Method C
1	1.77	-	-	-
2	1.77	-	-	-
3	1.77	-	-	-
4	1.78	-	-	-
5	1.78	-	-	-
Mean	1.77	-	-	-
S.D.X10^2	0.55	-	-	-

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

\- : *not determine ,the results from the titration of binary weak acid mixturwe could not be found by using multiple linear regression analysis since precipitation occur.*

Table 117 : The equivalent volume of procaine hydrochloride (ml) from the titration of single acid solution and the solution of lidocaine hydrochloride -procaine hydrochloride mixture.
: The approximate initial concentration ratio of the mixture solution (X) = 0.5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Procaine hydrochloride	G plot	Method A	Method B	Method C
1	1.92	1.91	1.91	1.91
2	1.91	1.92	1.92	1.93
3	1.92	1.92	1.92	1.92
4	1.92	1.92	1.92	1.92
5	1.93	1.91	1.91	1.91
Mean	1.92	1.92	1.92	1.92
S.D.X10^2	0.71	0.55	0.55	0.84

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 118 : The equivalent volume of lidocaine hydrochloride (ml) from the titration of single acid solution and the solution of lidocaine hydrochloride -procaine hydrochloride mixture .
: The approximate initial concentration ratio of the mixture solution (X) = 0.5.

Sample	Equivalent volume (ml.)			
	Single acid	Mixed acids		
Lidocaine hydrochloride	G plot	Method A	Method B	Method C
1	3.53	3.51	3.53	3.51
2	3.52	3.50	3.53	3.50
3	3.53	3.50	3.52	3.50
4	3.52	3.50	3.51	3.50
5	3.53	3.51	3.52	3.51
Mean	3.53	3.50*	3.52	3.50*
S.D.X10^2	0.55	0.55	0.84	0.55

* : *Statistical difference at 95 % confidence interval between the equivalent volumes obtained from the multiple linear regression analysis of two-mixed weak acids titration and G plot of single acid titration.*

Table 119: The results from the titration of binary weak acid mixtures

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			Slope A*	Slope B**
			Method A	Method B	Method C		
1. Neutral weak acid + Neutral weak acid							
Benzoic acid + Pivalic acid	1	0.93	X	√	X	0.23	0.32
Benzoic acid + Pivalic acid	5	0.93	X	√	X	0.54	0.23
Benzoic acid + Pivalic acid	10	0.93	X	√	X	0.67	0.23
Benzoic acid + Pivalic acid	15	0.93	X	X	X	1.95	0.45
Benzoic acid + Pivalic acid	0.5	0.93	X	√	X	0.26	0.46
Benzoic acid + *p*-nitrophenol	1	2.97	√	√	√	0.31	0.37
Benzoic acid + *p*-nitrophenol	5	2.97	X	√	X	0.91	0.24
Benzoic acid + *p*-nitrophenol	10	2.97	X	√	X	1.30	0.23
Benzoic acid + *p*-nitrophenol	0.5	2.97	√	√	√	0.27	0.46
Benzoic acid + Boric acid	1	5.02	√	√	√	0.35	0.35
Benzoic acid + Boric acid	5	5.02	X	√	X	1.32	0.28
Benzoic acid + Boric acid	10	5.02	X	√	X	1.62	0.20
Benzoic acid + Boric acid	15	5.02	X	X	X	3.88	0.23
Benzoic acid + Boric acid	0.5	5.02	√	√	√	0.23	0.47
Pivalic acid + *p*-Nitrophenol	1	2.04	X	√	X	0.44	0.43
Pivalic acid + *p*-Nitrophenol	5	2.04	X	√	X	1.06	0.32
Pivalic acid + *p*-Nitrophenol	10	2.04	X	√	X	1.51	0.29
Pivalic acid + *p*-Nitrophenol	0.2	2.04	X	√	X	0.25	1.06
Pivalic acid + *p*-Nitrophenol	0.1	2.04	X	X	X	0.20	2.18

Table 119 (continue) : The results from the titration of binary weak acid mixtures

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			Slope A*	Slope B**
			Method A	Method B	Method C		
Pivalic acid + Boric acid	1	4.09	√	√	√	0.46	0.45
Pivalic acid + Boric acid	5	4.09	X	√	X	1.43	0.29
Pivalic acid + Boric acid	10	4.09	X	√	X	1.77	0.26
Pivalic acid + Boric acid	15	4.09	X	X	X	2.78	0.26
Pivalic acid + Boric acid	0.2	4.09	X	√	X	0.23	1.03
Pivalic acid + Boric acid	0.1	4.09	X	X	X	0.22	2.64
p-Nitrophenol + Boric acid	1	2.05	X	√	X	0.62	0.65
p-Nitrophenol + Boric acid	5	2.05	X	√	X	1.24	0.32
p-Nitrophenol + Boric acid	10	2.05	X	√	X	1.56	0.31
p-Nitrophenol + Boric acid	15	2.05	X	X	X	3.22	0.44
p-Nitrophenol + Boric acid	0.2	2.05	X	√	X	0.28	1.13
p-Nitrophenol + Boric acid	0.1	2.05	X	X	X	0.25	2.00
2. Neutral weak acid + Ionized weak acid							
Benzoic acid + Pralidoxime chloride	1	3.88	√	√	√	0.32	0.37
Benzoic acid + Pralidoxime chloride	5	3.88	X	√	X	1.05	0.22
Benzoic acid + Pralidoxime chloride	10	3.88	X	√	X	1.55	0.20
Benzoic acid + Pralidoxime chloride	15	3.88	X	X	X	2.75	0.23
Benzoic acid + Pralidoxime chloride	0.5	3.88	√	√	√	0.26	0.53

Table 119 (continue) : The results from the titration of binary weak acid mixtures

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			Slope A*	Slope B**
			Method A	Method B	Method C		
Pivalic acid + Pralidoxime chloride	1	2.95	√	√	√	0.53	0.48
Pivalic acid + Pralidoxime chloride	5	2.95	X	√	X	1.10	0.27
Pivalic acid + Pralidoxime chloride	10	2.95	X	√	X	1.57	0.25
Pivalic acid + Pralidoxime chloride	15	2.95	X	X	X	3.00	0.29
Pivalic acid + Pralidoxime chloride	0.2	2.95	X	√	X	0.25	1.18
Pivalic acid + Pralidoxime chloride	0.1	2.95	X	X	X	0.24	2.13
p-Nitrophenol + Pralidoxime chloride	1	0.91	X	√	X	0.38	0.51
p-Nitrophenol + Pralidoxime chloride	5	0.91	X	√	X	0.74	0.32
p-Nitrophenol + Pralidoxime chloride	10	0.91	X	√	X	0.83	0.28
p-Nitrophenol + Pralidoxime chloride	15	0.91	X	X	X	2.43	0.40
p-Nitrophenol + Pralidoxime chloride	0.2	0.91	X	√	X	0.29	1.15
p-Nitrophenol + Pralidoxime chloride	0.1	0.91	X	X	X	0.23	2.00
Pralidoxime chloride + Boric acid	1	1.14	X	√	X	0.67	0.67
Pralidoxime chloride + Boric acid	5	1.14	X	X	X	1.25	0.56
Pralidoxime chloride + Boric acid	10	1.14	X	X	X	1.63	0.40
Pralidoxime chloride + Boric acid	0.2	1.14	X	√	X	0.40	1.25
Pralidoxime chloride + Boric acid	0.1	1.14	X	X	X	0.32	1.94

Table 119 (continue) : The results from the titration of binary weak acid mixtures

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			Slope A*	Slope B**
			Method A	Method B	Method C		
3. Ionized weak acid + Ionized weak acid							
Lidocaine HCl + Procaine HCl	1	1.12	X	√	X	0.77	0.77
Lidocaine HCl + Procaine HCl	5	1.12	ND	ND	ND	1.16	0.48
Lidocaine HCl + Procaine HCl	0.5	1.12	X	√	X	0.54	0.92

√ = *no statistical difference at 95% confidence interval between the equivalent volumes obtained from G plot of single acid titration and multiple regression analysis of the titration of acid mixtures.*

X = *statistical difference at 95% confidence interval between the equivalent volumes obtained from G plot of single acid titration and multiple regression analysis of the titration of acid mixtures.*

ND = *Not determine,the results from the titration of binary weak acid mixtures could not be found by multiple linear regression analysis since precipitation occur.*

* = *The slope of the buffer region of the stronger acid A from the titration curves of two-mixed weak acids solution.*

** = *The slope of the buffer region of the weaker acid B from the titration curves of two-mixed weak acids solution.*

Table 120: The results of the stronger acid A from the titration of binary weak acid mixtures.

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			Slope A*
			Method A	Method B	Method C	
1. Neutral weak acid + Neutral weak acid						
Benzoic acid + Pivalic acid	1	0.93	X	√	X	0.23
Benzoic acid + Pivalic acid	5	0.93	X	√	X	0.54
Benzoic acid + Pivalic acid	10	0.93	X	√	X	0.67
Benzoic acid + Pivalic acid	15	0.93	X	X	X	1.95
Benzoic acid + Pivalic acid	0.5	0.93	X	√	X	0.26
Benzoic acid + *p*-nitrophenol	1	2.97	√	√	√	0.31
Benzoic acid + *p*-nitrophenol	5	2.97	X	√	X	0.91
Benzoic acid + *p*-nitrophenol	10	2.97	X	√	X	1.30
Benzoic acid + *p*-nitrophenol	0.5	2.97	√	√	√	0.27
Benzoic acid + Boric acid	1	5.02	√	√	√	0.35
Benzoic acid + Boric acid	5	5.02	X	√	X	1.32
Benzoic acid + Boric acid	10	5.02	X	√	X	1.62
Benzoic acid + Boric acid	15	5.02	X	X	X	3.88
Benzoic acid + Boric acid	0.5	5.02	√	√	√	0.23
Pivalic acid + *p*-Nitrophenol	1	2.04	X	√	X	0.44
Pivalic acid + *p*-Nitrophenol	5	2.04	X	√	X	1.06
Pivalic acid + *p*-Nitrophenol	10	2.04	X	√	X	1.51
Pivalic acid + *p*-Nitrophenol	0.2	2.04	X	√	X	0.25
Pivalic acid + *p*-Nitrophenol	0.1	2.04	X	√	X	0.20

Table 120(cont.): The results of the stronger acid A from the titration of binary weak acid mixtures.

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			Slope A*
			Method A	Method B	Method C	
Pivalic acid + Boric acid	1	4.09	√	√	√	0.46
Pivalic acid + Boric acid	5	4.09	X	√	X	1.43
Pivalic acid + Boric acid	10	4.09	X	√	X	1.77
Pivalic acid + Boric acid	15	4.09	X	X	X	2.78
Pivalic acid + Boric acid	0.2	4.09	X	√	X	0.23
Pivalic acid + Boric acid	0.1	4.09	X	√	X	0.22
p-Nitrophenol + Boric acid	1	2.05	X	√	X	0.62
p-Nitrophenol + Boric acid	5	2.05	X	√	X	1.24
p-Nitrophenol + Boric acid	10	2.05	X	√	X	1.56
p-Nitrophenol + Boric acid	15	2.05	X	X	X	3.22
p-Nitrophenol + Boric acid	0.2	2.05	X	√	X	0.28
p-Nitrophenol + Boric acid	0.1	2.05	X	√	X	0.25
2. Neutral weak acid + Ionized weak acid						
Benzoic acid + Pralidoxime chloride	1	3.88	√	√	√	0.32
Benzoic acid + Pralidoxime chloride	5	3.88	X	√	X	1.05
Benzoic acid + Pralidoxime chloride	10	3.88	X	√	X	1.55
Benzoic acid + Pralidoxime chloride	15	3.88	X	X	X	2.75
Benzoic acid + Pralidoxime chloride	0.5	3.88	√	√	√	0.26

Table 120(cont.): The results of the stronger acid A from the titration of binary weak acid mixtures.

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			Slope A*
			Method A	Method B	Method C	
Pivalic acid + Pralidoxime chloride	1	2.95	√	√	√	0.53
Pivalic acid + Pralidoxime chloride	5	2.95	X	√	X	1.10
Pivalic acid + Pralidoxime chloride	10	2.95	X	√	X	1.57
Pivalic acid + Pralidoxime chloride	15	2.95	X	X	X	3.00
Pivalic acid + Pralidoxime chloride	0.2	2.95	X	√	X	0.25
Pivalic acid + Pralidoxime chloride	0.1	2.95	X	√	X	0.24
p-Nitrophenol + Pralidoxime chloride	1	0.91	X	√	X	0.38
p-Nitrophenol + Pralidoxime chloride	5	0.91	X	√	X	0.74
p-Nitrophenol + Pralidoxime chloride	10	0.91	X	√	X	0.83
p-Nitrophenol + Pralidoxime chloride	15	0.91	X	X	X	2.43
p-Nitrophenol + Pralidoxime chloride	0.2	0.91	X	√	X	0.29
p-Nitrophenol + Pralidoxime chloride	0.1	0.91	X	√	X	0.23
Pralidoxime chloride + Boric acid	1	1.14	X	√	X	0.67
Pralidoxime chloride + Boric acid	5	1.14	X	√	X	1.25
Pralidoxime chloride + Boric acid	10	1.14	X	√	X	1.63
Pralidoxime chloride + Boric acid	0.2	1.14	X	√	X	0.40
Pralidoxime chloride + Boric acid	0.1	1.14	X	√	X	0.32

Table 120(cont.): The results of the stronger acid A from the titration of binary weak acid mixtures.

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			Slope A*
			Method A	Method B	Method C	
3. Ionized weak acid + Ionized weak acid						
Lidocaine HCl + Procaine HCl	1	1.12	X	√	X	0.77
Lidocaine HCl + Procaine HCl	5	1.12	ND	ND	ND	1.16
Lidocaine HCl + Procaine HCl	0.5	1.12	X	√	X	0.54

√ = *no statistical difference at 95% confidence interval between the equivalent volumes obtained from G plot of single acid titration and multiple regression analysis of the titration of acid mixtures.*

X = *statistical difference at 95% confidence interval between the equivalent volumes obtained from G plot of single acid titration and multiple regression analysis of the titration of acid mixtures.*

ND = *Not determine, the results from the titration of binary weak acid mixtures could not be found by multiple linear regression analysis since precipitation occur.*

* = *The slope of the buffer region of the stronger acid A from the titration curves of two-mixed weak acids solution.*

Table 121:The results of the weaker acid B from the titration of binary weak acid mixtures.

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			Slope B**
			Method A	Method B	Method C	
1. Neutral weak acid + Neutral weak acid						
Benzoic acid + Pivalic acid	1	0.93	√	√	√	0.32
Benzoic acid + Pivalic acid	5	0.93	√	√	√	0.23
Benzoic acid + Pivalic acid	10	0.93	√	√	√	0.23
Benzoic acid + Pivalic acid	15	0.93	X	X	X	0.45
Benzoic acid + Pivalic acid	0.5	0.93	√	√	√	0.46
Benzoic acid + *p*-nitrophenol	1	2.97	√	√	√	0.37
Benzoic acid + *p*-nitrophenol	5	2.97	√	√	√	0.24
Benzoic acid + *p*-nitrophenol	10	2.97	√	√	√	0.23
Benzoic acid + *p*-nitrophenol	0.5	2.97	√	√	√	0.46
Benzoic acid + Boric acid	1	5.02	√	√	√	0.35
Benzoic acid + Boric acid	5	5.02	√	√	√	0.28
Benzoic acid + Boric acid	10	5.02	√	√	√	0.20
Benzoic acid + Boric acid	15	5.02	X	X	X	0.23
Benzoic acid + Boric acid	0.5	5.02	√	√	√	0.47
Pivalic acid + *p*-Nitrophenol	5	2.04	√	√	√	0.32
Pivalic acid + *p*-Nitrophenol	10	2.04	√	√	√	0.29
Pivalic acid + *p*-Nitrophenol	0.2	2.04	√	√	√	1.06
Pivalic acid + *p*-Nitrophenol	0.1	2.04	X	X	X	2.18

Table 121(cont.): The results of the weaker acid B from the titration of binary weak acid mixtures.

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			Slope B**
			Method A	Method B	Method C	
Pivalic acid + Boric acid	1	4.09	√	√	√	0.45
Pivalic acid + Boric acid	5	4.09	√	√	√	0.29
Pivalic acid + Boric acid	10	4.09	√	√	√	0.26
Pivalic acid + Boric acid	15	4.09	X	X	X	0.26
Pivalic acid + Boric acid	0.2	4.09	√	√	√	1.03
Pivalic acid + Boric acid	0.1	4.09	X	X	X	2.64
p-Nitrophenol + Boric acid	1	2.05	√	√	√	0.65
p-Nitrophenol + Boric acid	5	2.05	√	√	√	0.32
p-Nitrophenol + Boric acid	10	2.05	√	√	√	0.31
p-Nitrophenol + Boric acid	15	2.05	X	X	X	0.44
p-Nitrophenol + Boric acid	0.2	2.05	√	√	√	1.13
p-Nitrophenol + Boric acid	0.1	2.05	X	X	X	2.00
2. Neutral weak acid + Ionized weak acid						
Benzoic acid + Pralidoxime chloride	1	3.88	√	√	√	0.37
Benzoic acid + Pralidoxime chloride	5	3.88	√	√	√	0.22
Benzoic acid + Pralidoxime chloride	10	3.88	√	√	√	0.20
Benzoic acid + Pralidoxime chloride	15	3.88	X	X	X	0.23
Benzoic acid + Pralidoxime chloride	0.5	3.88	√	√	√	0.53

Table 121(cont.): The results of the weaker acid B from the titration of binary weak acid mixtures.

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			Slope B**
			Method A	Method B	Method C	
Pivalic acid + Pralidoxime chloride	1	2.95	√	√	√	0.48
Pivalic acid + Pralidoxime chloride	5	2.95	√	√	√	0.27
Pivalic acid + Pralidoxime chloride	10	2.95	√	√	√	0.25
Pivalic acid + Pralidoxime chloride	15	2.95	X	X	X	0.29
Pivalic acid + Pralidoxime chloride	0.2	2.95	√	√	√	1.18
Pivalic acid + Pralidoxime chloride	0.1	2.95	X	X	X	2.13
p-Nitrophenol + Pralidoxime chloride	1	0.91	√	√	√	0.51
p-Nitrophenol + Pralidoxime chloride	5	0.91	√	√	√	0.32
p-Nitrophenol + Pralidoxime chloride	10	0.91	√	√	√	0.28
p-Nitrophenol + Pralidoxime chloride	15	0.91	X	X	X	0.40
p-Nitrophenol + Pralidoxime chloride	0.2	0.91	√	√	√	1.15
p-Nitrophenol + Pralidoxime chloride	0.1	0.91	X	X	X	2.00
Pralidoxime chloride + Boric acid	1	1.14	√	√	√	0.67
Pralidoxime chloride + Boric acid	5	1.14	X	X	X	0.56
Pralidoxime chloride + Boric acid	10	1.14	X	X	X	0.40
Pralidoxime chloride + Boric acid	0.2	1.14	√	√	√	1.25
Pralidoxime chloride + Boric acid	0.1	1.14	X	X	X	1.94

Table 121(cont.): The results of the weaker acid B from the titration of binary weak acid mixtures.

Weak acidic mixtures	Inital concentration ratio (X)	ΔpKa	Results			lSope
			Method A	Method B	Method C	B**
3. Ionized weak acid + Ionized weak acid						
Lidocaine HCl + Procaine HCl	1	1.12	√	√	√	0.77
Lidocaine HCl + Procaine HCl	5	1.12	ND	ND	ND	0.48
Lidocaine HCl + Procaine HCl	0.5	1.12	√	√	√	0.92

√ = *no statistical difference at 95% confidence interval between the equivalent volumes obtained from G plot of single acid titration and multiple regression analysis of the titration of acid mixtures.*

X = *statistical difference at 95% confidence interval between the equivalent volumes obtained from G plot of single acid titration and multiple regression analysis of the titration of acid mixtures.*

ND = *Not determine, the results from the titration of binary weak acid mixtures could not be found by multiple linear regression analysis since precipitation occur.*

** = *The slope of the buffer region of the weaker acid B from the titration curves of two-mixed weak acids solution.*

Table 122. Theoretical coefficient variation of the parameters V_{eA} (%CVV_{eA}) and V_{eB} (%CVV_{eB}) for K_{aA} = 4,5,6,7,8,9, given N = 0.1 normal, $K_w = 1.2846 \times 10^{-14}$, X=1, $\gamma H^+ = 1$, 6pH=0.002 and 6v=0.005 cm^3(F = 2, G/F = 2.5).

Δ	pK_{ab}	Coefficient variation of the parameters					
		%C.V.Ve_B			%C.V.Ve_A		
		pH*	Vb**	pH&Vb***	pH*	Vb**	pH&Vb***
A For pK_{aa} = 4							
5	9	0.04018	0.17076	0.17252	0.08017	0.21009	0.22559
4	8	0.04336	0.17218	0.17756	0.08222	0.21018	0.22569
3	7	0.04491	0.17449	0.18018	0.08482	0.21390	0.23011
2	6	0.06038	0.1922	0.20146	0.10146	0.23518	0.25614
1	5	0.15059	0.30252	0.33793	0.20145	0.35787	0.41068
B For pK_{aa} = 5							
4	9	0.04098	0.17141	0.17185	0.05361	0.19320	0.20049
3	8	0.04383	0.17422	0.17965	0.05540	0.19594	0.20362
2	7	0.05673	0.19000	0.19829	0.06952	0.21404	0.22505
1	6	0.13306	0.29010	0.31916	0.14943	0.31941	0.35264
C For pK_{aa} = 6							
3	9	0.04990	0.17823	0.18508	0.05142	0.19360	0.20032
2	8	0.05717	0.19052	0.19891	0.06495	0.21082	0.22060
1	7	0.13070	0.28816	0.31642	0.14193	0.31312	0.34378
D For pK_{aa} = 7							
2	9	0.06377	0.19554	0.20567	0.06539	0.21149	0.22137
1	8	0.13228	0.28995	0.31870	0.14191	0.34397	0.34397
E For pK_{aa} = 8							
1	9	0.14329	0.299841	0.33232	0.14643	0.31772	0.34984

* = Coefficient variation of the parameters Ve_B, Ve_A according to the standard error of pH measurements.
** = Coefficient variation of the parameters Ve_B, Ve_A according to the standard error of volume measurements
***= Coefficient variation of the parameters Ve_B, Ve_A according to the standard error of pH and volume measurements

Table 123. Theoretical coefficient variation of the parameters V_{eA} (%CVV_{eA}) and V_{eB} (%CVV_{eB}) for pK_{aA} = 4,5,6,7,8,9, given N = 0.1 normal, $K_w = 1.2846 \times 10^{-14}$, X=5 $\gamma H^+ = 1$, 6pH=0.002 and 6v=0.005 cm^3(F = 2, G/F = 2.5).

Δ	pK_{ab}	Coefficient variation of the parameters					
		%C.V.Ve_B			%C.V.Ve_A		
		pH*	Vb**	pH&Vb***	pH*	Vb**	pH&Vb***
A For pK_{aa} = 4							
5	9	0.03035	0.03308	0.04583	0.15694	0.21024	0.26236
4	8	0.03269	0.03313	0.04655	0.15879	0.21127	0.26429
3	7	0.03330	0.03378	0.04744	0.17158	0.217	0.27663
2	6	0.03961	0.03781	0.05476	0.23655	0.24197	0.33839
1	5	0.08887	0.06225	0.10850	0.05439	0.35282	0.64036
B For pK_{aa} = 5							
4	9	0.03143	0.03348	0.04703	0.13311	0.19374	0.23506
3	8	0.03343	0.03388	0.04760	0.14346	0.19849	0.24491
2	7	0.03891	0.03760	0.05412	0.19900	0.22028	0.29686
1	6	0.08215	0.06027	0.10182	0.45266	0.32048	0.55463
C For pK_{aa} = 6							
3	9	0.03524	0.03415	0.04907	0.13980	0.19567	0.24048
2	8	0.03906	0.03762	0.05423	0.19321	0.21679	0.29039
1	7	0.08096	0.05989	0.10071	0.43882	0.31485	0.54009
D For pK_{aa} = 7							
2	9	0.04105	0.03796	0.05591	0.19375	0.21676	0.29073
1	8	0.08134	0.06003	0.10109	0.43810	0.31459	0.53935
E For pK_{aa} = 8							
1	9	0.08445	0.06081	0.10407	0.443532	0.31641	0.54483

* = Coefficient variation of the parameters Ve_B, Ve_A according to the standard error of pH measurements.
** = Coefficient variation of the parameters Ve_B, Ve_A according to the standard error of volume measurements
***= Coefficient variation of the parameters Ve_B, Ve_A according to the standard error of pH and volume measurements

Table 124. Theoretical coefficient variation of the parameters V_{eA} (%CVV_{eA}) and V_{eB} (%CVV_{eB}) for pK_{aA} = 4,5,6,7,8,9, given N = 0.1 normal, $K_w = 1.2846x10^{-14}$, X=10, $\gamma H^+ = 1$, 6pH=0.002 and 6v=0.005 cm^3(F = 2, G/F = 2.5).

Δ	pK_{ab}	Coefficient variation of the parameters					
		%C.V.Ve_B			%C.V.Ve_A		
		pH*	Vb**	pH&Vb***	pH*	Vb**	pH&Vb***
A For pK_{aa} = 4							
5	9	0.03165	0.01618	0.03643	0.26470	0.21109	0.33856
4	8	0.03275	0.01636	0.03661	0.27075	0.21278	0.34436
3	7	0.03319	0.01670	0.03715	0.30340	0.22039	0.37499
2	6	0.03828	0.01885	0.04267	0.44522	0.24603	0.50868
1	5	0.08464	0.03133	0.09026	0.97343	0.34009	1.03113
B For pK_{aa} = 5							
4	9	0.03238	0.01658	0.03663	0.23689	0.19495	0.30680
3	8	0.03336	0.01685	0.03737	0.26392	0.20144	0.33201
2	7	0.03793	0.01890	0.04238	0.38562	0.22460	0.44627
1	6	0.08006	0.03077	0.08577	0.85626	0.31398	0.91201
C For pK_{aa} = 6							
3	9	0.03438	0.01695	0.03833	0.25807	0.19845	0.32555
2	8	0.03802	0.01893	0.04247	0.37570	0.22107	0.43592
1	7	0.07910	0.03066	0.08483	0.83455	0.30932	0.89003
D For pK_{aa} = 7							
2	9	0.03918	0.01904	0.04356	0.37584	0.22092	0.43596
1	8	0.07931	0.03071	0.08505	0.83301	0.30905	0.88849
E For pK_{aa} = 8							
1	9	0.08125	0.03099	0.08696	0.83962	0.31037	0.89515

* = Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of pH measurements.
** = Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of volume measurements
***= Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of pH and volume measurements

Table 125. Theoretical coefficient variation of the parameters V_{eA} (%CVV_{eA}) and V_{eB} (%CVV_{eB}) for pK_{aa} = 4,5,6,7,8,9, given N = 0.1 normal, $K_w = 1.2846 \times 10^{-14}$, X=20, $\gamma H^+ = 1$, 6pH=0.002 and 6v=0.005 cm^3(F = 2, G/F = 2.5).

Δ	pK_{ab}	Coefficient variation of the parameters					
		%C.V.Ve_B			%C.V.Ve_A		
		pH*	Vb**	pH&Vb***	pH*	Vb**	pH&Vb***
A For pK_{aa} = 4							
5	9	0.03302	0.00865	0.03510	0.44975	0.21334	0.49778
4	8	0.03449	0.00872	0.03557	0.46778	0.21607	0.51527
3	7	0.03456	0.00878	0.03566	0.55447	0.22641	0.59892
2	6	0.03824	0.00966	0.03944	0.86804	0.24937	0.90315
1	5	0.08265	0.01571	0.08413	1.78069	0.32438	1.80999
B For pK_{aa} = 5							
4	9	0.03301	0.00878	0.03509	0.41380	0.19774	0.45862
3	8	0.03467	0.00886	0.03579	0.48617	0.20676	0.52831
2	7	0.03828	0.00980	0.03592	0.76022	0.22908	0.79399
1	6	0.08035	0.01572	0.08188	1.61323	0.30449	1.64171
C For pK_{aa} = 6							
3	9	0.03526	0.00890	0.03637	0.47515	0.20357	0.51692
2	8	0.03836	0.00982	0.03960	0.74125	0.22565	0.77438
1	7	0.07972	0.01572	0.08126	1.57993	0.30090	1.60833
D For pK_{aa} = 7							
2	9	0.03906	0.00987	0.04028	0.74034	0.22539	0.77389
1	8	0.07987	0.01575	0.08140	1.57699	0.30066	1.60540
E For pK_{aa} = 8							
1	9	0.08111	0.01585	0.08265	1.58505	0.30159	1.61348

* = Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of pH measurements.
** = Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of volume measurements
***= Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of pH and volume measurements

Table 126 Theoretical coefficient variation of the parameters V_{eA} (%CVV_{eA}) and V_{eB} (%CVV_{eB}) for pK_{aA} = 4,5,6,7,8,9, given N = 0.1 normal, $K_w = 1.2846 \times 10^{-14}$, X=0.2, $\gamma H^+ = 1$, 6pH=0.002 and 6v=0.005 cm^3(F = 2, G/F = 2.5).

Δ	pK_{ab}	Coefficient variation of the parameters					
		%C.V.Ve_B			%C.V.Ve_A		
		pH*	Vb**	pH&Vb***	pH*	Vb**	pH&Vb***
A For pK_{aa} = 4							
5	9	0.13914	0.16913	0.22050	0.05855	0.04332	0.07283
4	8	0.14255	0.17251	0.22379	0.05864	0.04336	0.07293
3	7	0.15244	0.17618	0.23298	0.05993	0.04424	0.07449
2	6	0.2083	0.19733	0.28695	0.06782	0.04909	0.08373
1	5	0.48176	0.30628	0.57087	0.12129	0.07625	0.14327
B For pK_{aa} = 5							
4	9	0.14556	0.17266	0.22890	0.04754	0.04208	0.06349
3	8	0.14954	0.17661	0.23142	0.04851	0.04283	0.06471
2	7	0.20147	0.19649	0.28142	0.05532	0.04738	0.07284
1	6	0.45497	0.30108	0.54558	0.10279	0.07288	0.12600
C For pK_{aa} = 6							
3	9	0.15636	0.18136	0.23946	0.04728	0.04279	0.06377
2	8	0.20259	0.1975	0.28293	0.05389	0.04722	0.07165
1	7	0.45259	0.30071	0.54338	0.10064	0.07247	0.12402
D For pK_{aa} = 7							
2	9	0.21259	0.20329	0.29414	0.05419	0.04744	0.07206
1	8	0.45684	0.30258	0.54796	0.10098	0.07265	0.12440
E For pK_{aa} = 8							
1	9	0.47981	0.31220	0.57244	0.10363	0.07391	0.12717

* = Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of pH measurements.
** = Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of volume measurements
***= Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of pH and volume measurements

Table 127 Theoretical coefficient variation of the parameters V_{eA} (%CVV_{eA}) and V_{eB} (%CVV_{eB}) for pK_{aA} = 4,5,6,7,8,9, given N = 0.1 normal, $K_w = 1.2846 \times 10^{-14}$, X=0.1 $\gamma H^+ = 1$, 6pH=0.002 and 6v=0.005 cm^3(F = 2, G/F = 2.5).

Δ	pK_{ab}	Coefficient variation of the parameters					
		%C.V.Ve_B			%C.V.Ve_A		
		pH*	Vb**	pH&Vb***	pH*	Vb**	pH&Vb***
A For pK_{aa} = 4							
5	9	0.26820	0.17017	0.32219	0.06069	0.02414	0.06532
4	8	0.29810	0.17339	0.34486	0.06082	0.02419	0.06545
3	7	0.32528	0.17846	0.37102	0.06227	0.02479	0.06702
2	6	0.45387	0.20219	0.49687	0.07085	0.02786	0.07614
1	5	0.96914	0.30693	1.01658	0.12484	0.04264	0.13192
B For pK_{aa} = 5							
4	9	0.30551	0.17828	0.35373	0.05286	0.02369	0.05793
3	8	0.32210	0.17918	0.36858	0.05401	0.02422	0.05919
2	7	0.44400	0.20163	0.48764	0.06164	0.02716	0.06736
1	6	0.93179	0.30309	0.97985	0.11128	0.04128	0.11869
C For pK_{aa} = 6							
3	9	0.33584	0.18468	0.38326	0.05326	0.02425	0.05852
2	8	0.44717	0.20285	0.49103	0.06072	0.02712	0.06650
1	7	0.92910	0.30296	0.97724	0.10984	0.04113	0.11729
D For pK_{aa} = 7							
2	9	0.46812	0.20939	0.51282	0.06120	0.02730	0.06702
1	8	0.93641	0.30467	0.98473	0.11021	0.04123	0.11767
E For pK_{aa} = 8							
1	9	0.97429	0.3134	1.02345	0.11258	0.12007	0.12007

* = Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of pH measurements.
** = Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of volume measurements
***= Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of pH and volume measurements

Table 128 Theoretical coefficient variation of the parameters V_{eA} (%CVV_{eA}) and V_{eB} (%CVVe_B) for pK_{aA} = 4,5,6,7,8,9, given N = 0.1 normal, $K_w = 1.2846 \times 10^{-14}$, X=0.05, $\gamma H^+ = 1$, 6pH=0.002 and 6v=0.005 cm^3(F = 2, G/F = 2.5).

Δ	pK_{ab}	Coefficient variation of the parameters					
		%C.V.Ve_B			%C.V.Ve_A		
		pH*	Vb**	pH&Vb***	pH*	Vb**	pH&Vb***
A For pK_{aa} = 4							
5	9	0.64410	0.16096	0.67797	0.07049	0.01491	0.07205
4	8	0.66427	0.17690	0.68742	0.07072	0.01496	0.07229
3	7	0.74720	0.18434	0.76960	0.07279	0.01543	0.07441
2	6	1.05107	0.21002	1.07185	0.08400	0.01752	0.08581
1	5	1.94175	0.3047	1.96551	0.13713	0.02529	0.13944
B For pK_{aa} = 5							
4	9	0.68682	0.18299	0.71078	0.06413	0.01472	0.06580
3	8	0.74455	0.18538	0.76728	0.06587	0.01515	0.06759
2	7	1.03478	0.20956	1.05578	0.07616	0.01716	0.07807
1	6	1.88868	0.30177	1.91264	0.12606	0.02465	0.12845
C For pK_{aa} = 6							
3	9	0.78031	0.19220	0.80363	0.06540	0.01518	0.06714
2	8	1.04313	0.21099	1.06426	0.07549	0.01714	0.07741
1	7	1.88513	0.30170	1.90912	0.12494	0.02459	0.12733
D For pK_{aa} = 7							
2	9	1.09252	0.21850	1.11445	0.07621	0.01725	0.07815
1	8	1.89646	0.30314	1.92053	0.12522	0.02463	0.12761
E For pK_{aa} = 8							
1	9	1.95596	0.31064	1.98048	0.12701	0.02484	0.12942

* = Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of pH measurements.

** = Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of volume measurements

***= Coefficient variation of the parameters Ve_B , Ve_A according to the standard error of pH and volume measurements

APPENDIX B

FIGURES

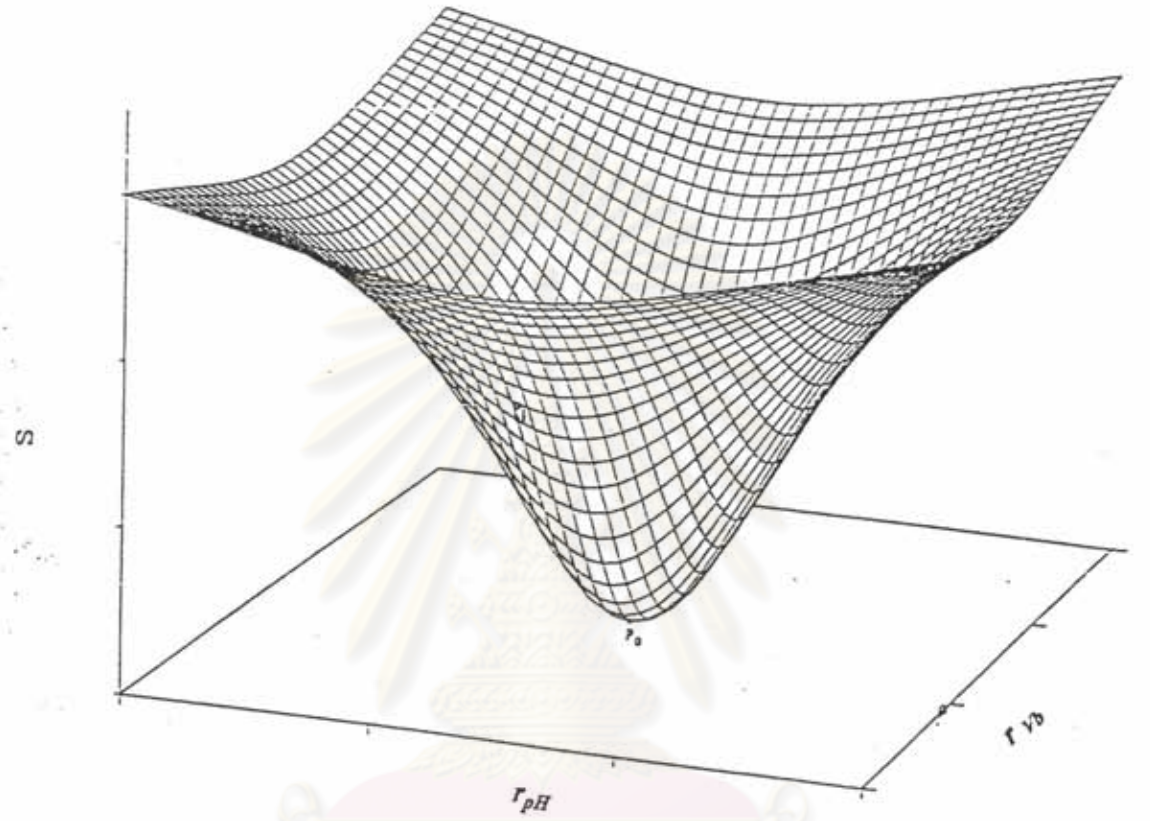

Fig. 1 : Conceptual representation of the three-dimensional error surface for two parameter, the residual of a measurement of pH (r_{pH}) and the residual of a measurement of volume of base (r_{V_B}).

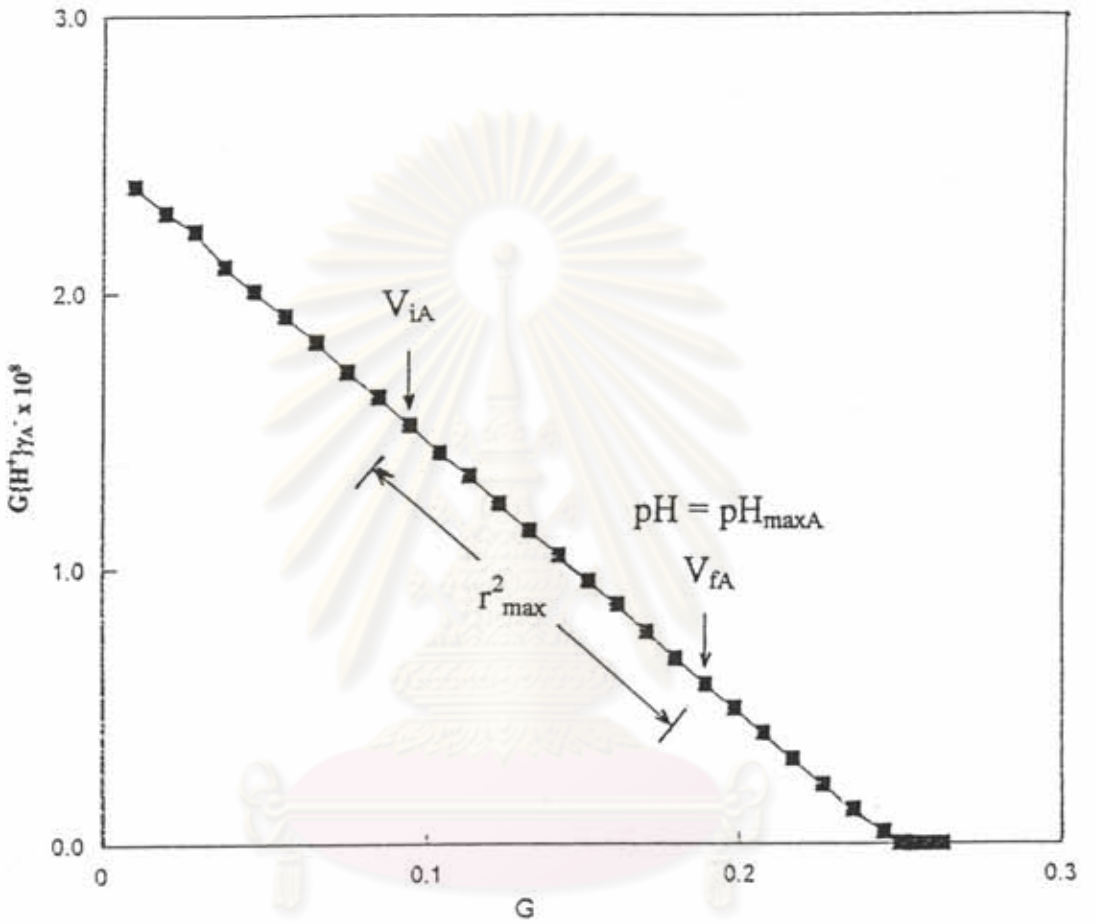

Fig. 2 : G plot linearity range of acid A (stronger acid).

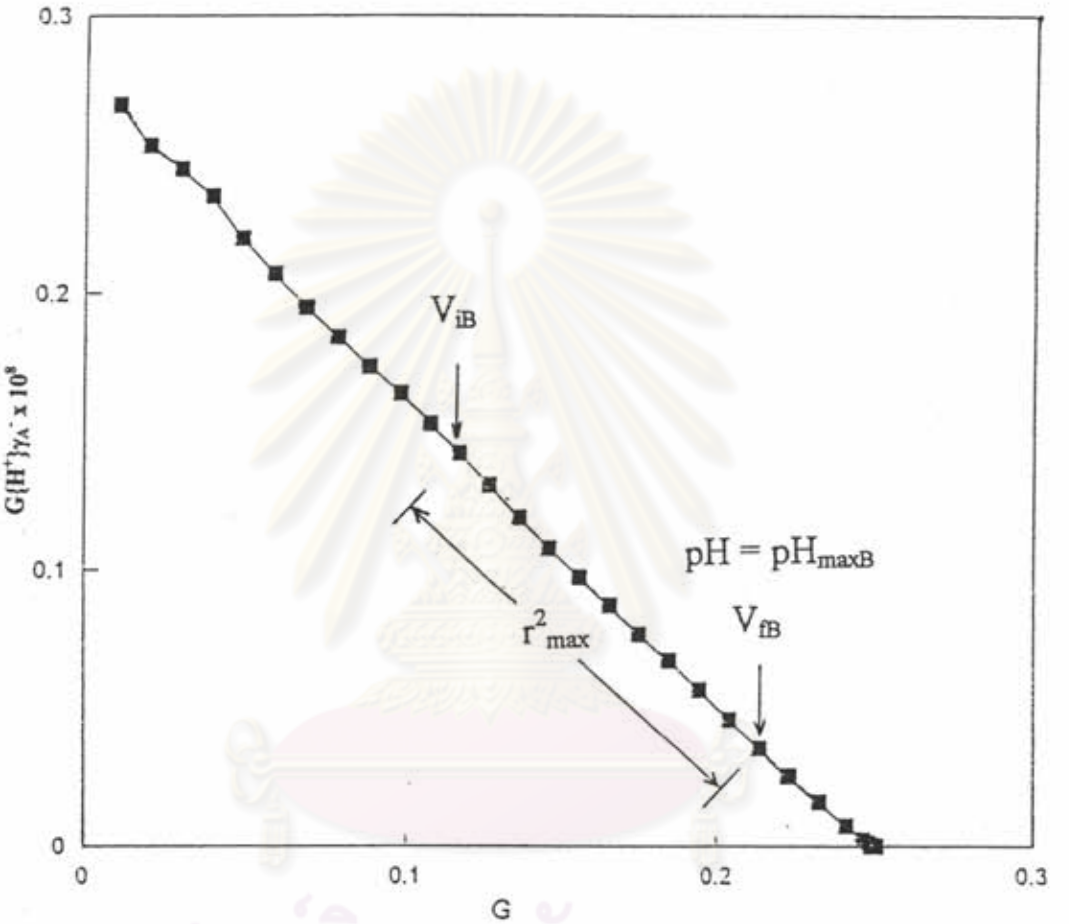

Fig. 3: G plot linearity range of acid B (weaker acid).

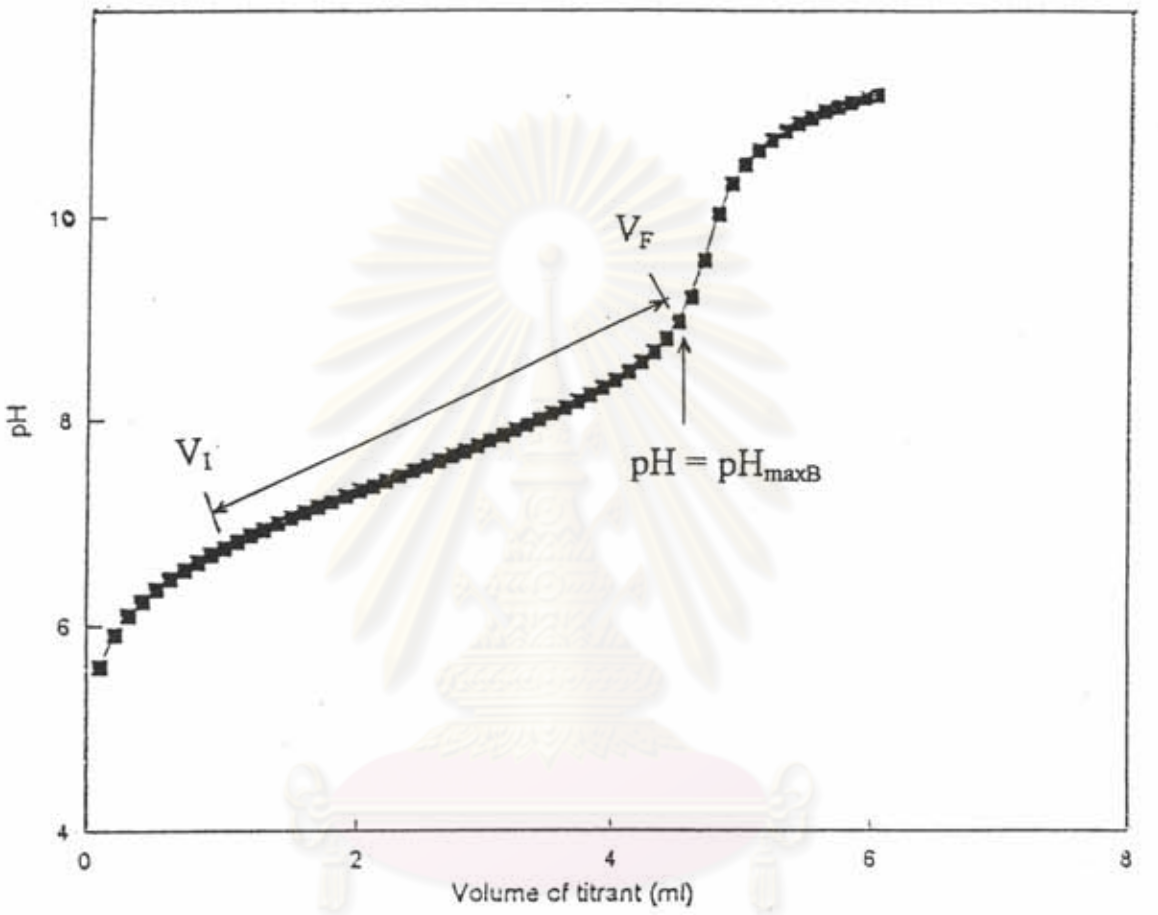

Fig. 4 : Titration data range chosen by Method A.

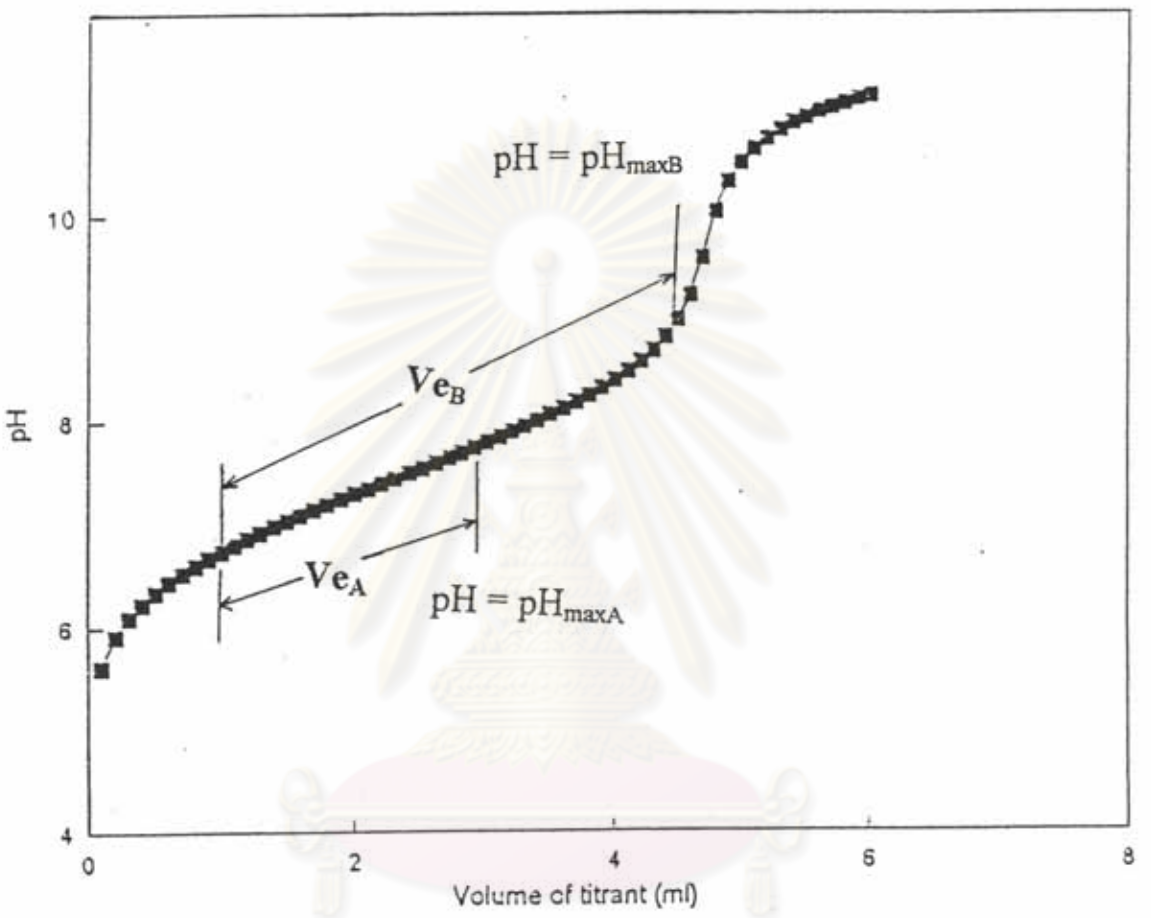

Fig.5 : Titration data range chosen by Method B.

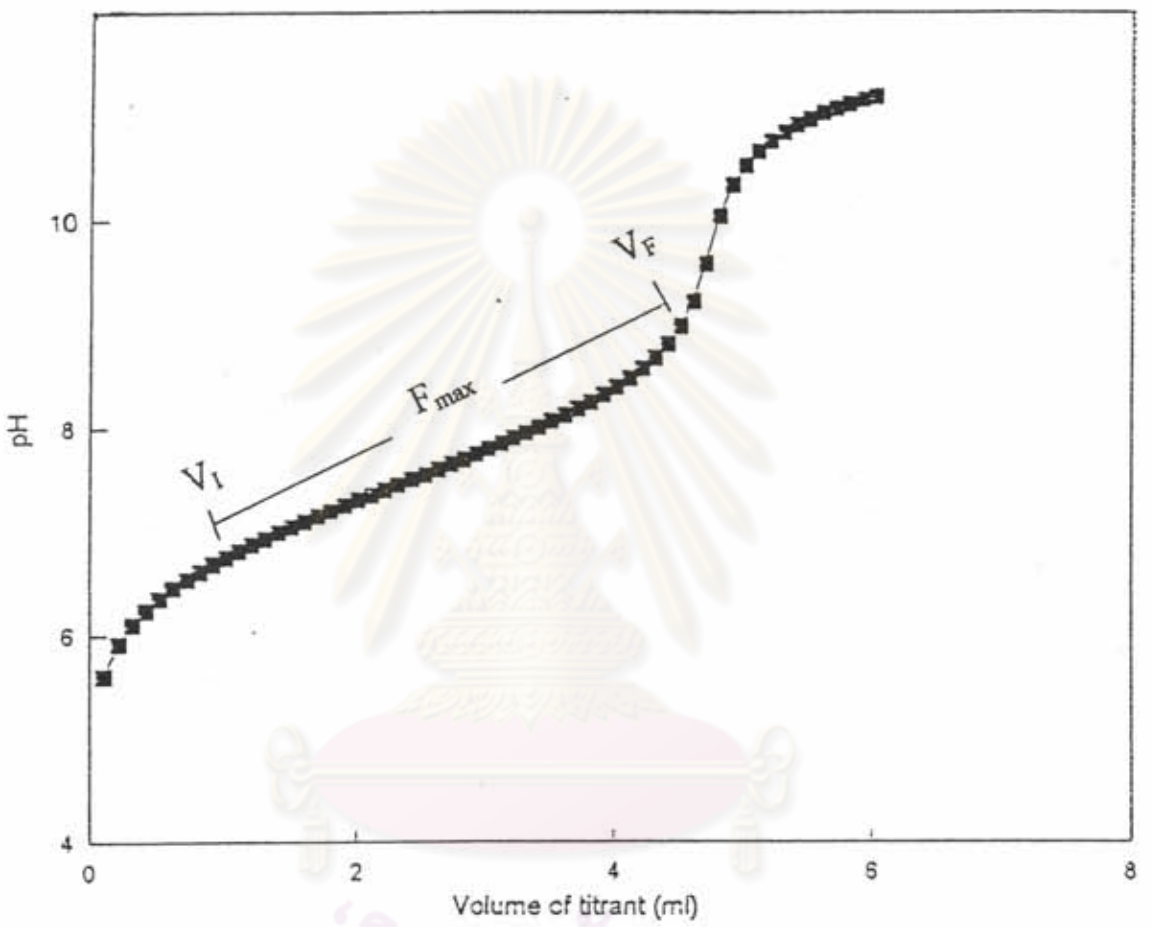

Fig.6 : Titration data range chosen by Method C.

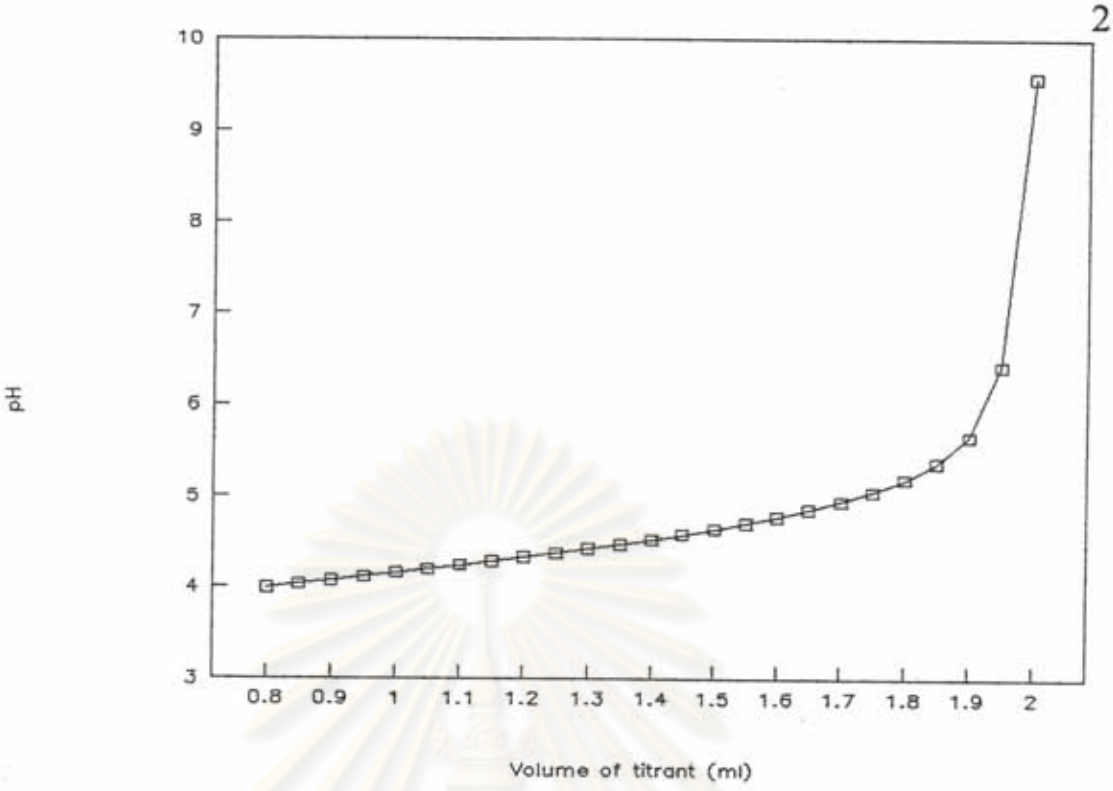

Fig. 7 : Titration curve of benzoic acid (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

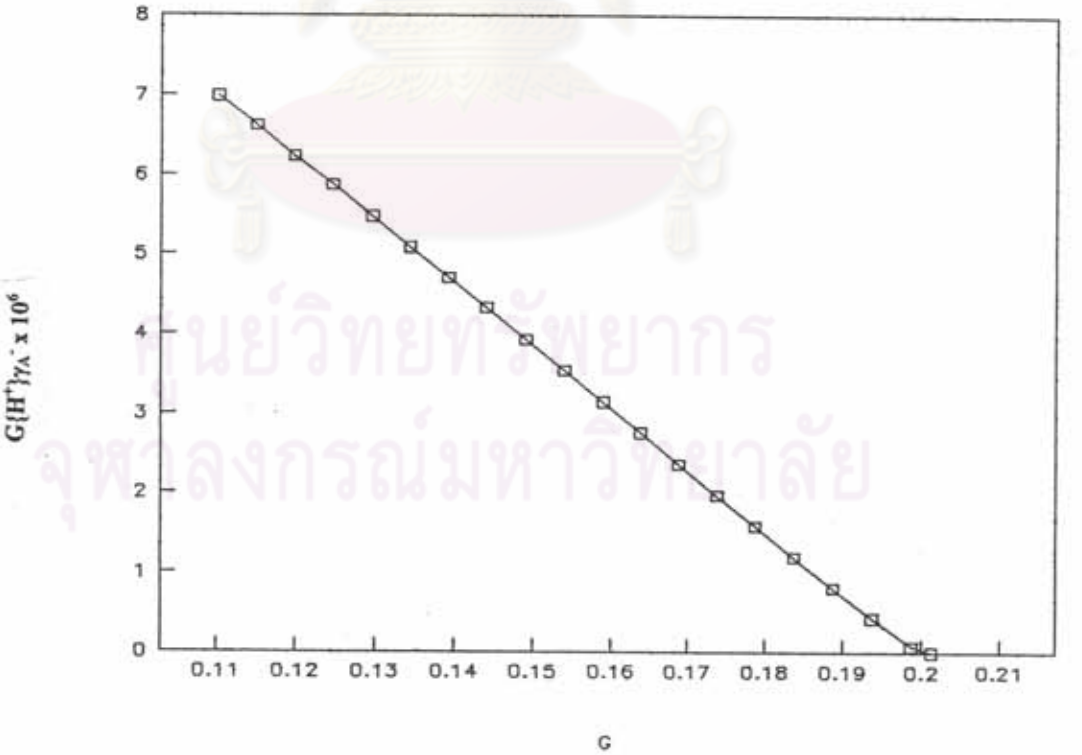

Fig.8 : G plot for the titration of benzoic acid (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

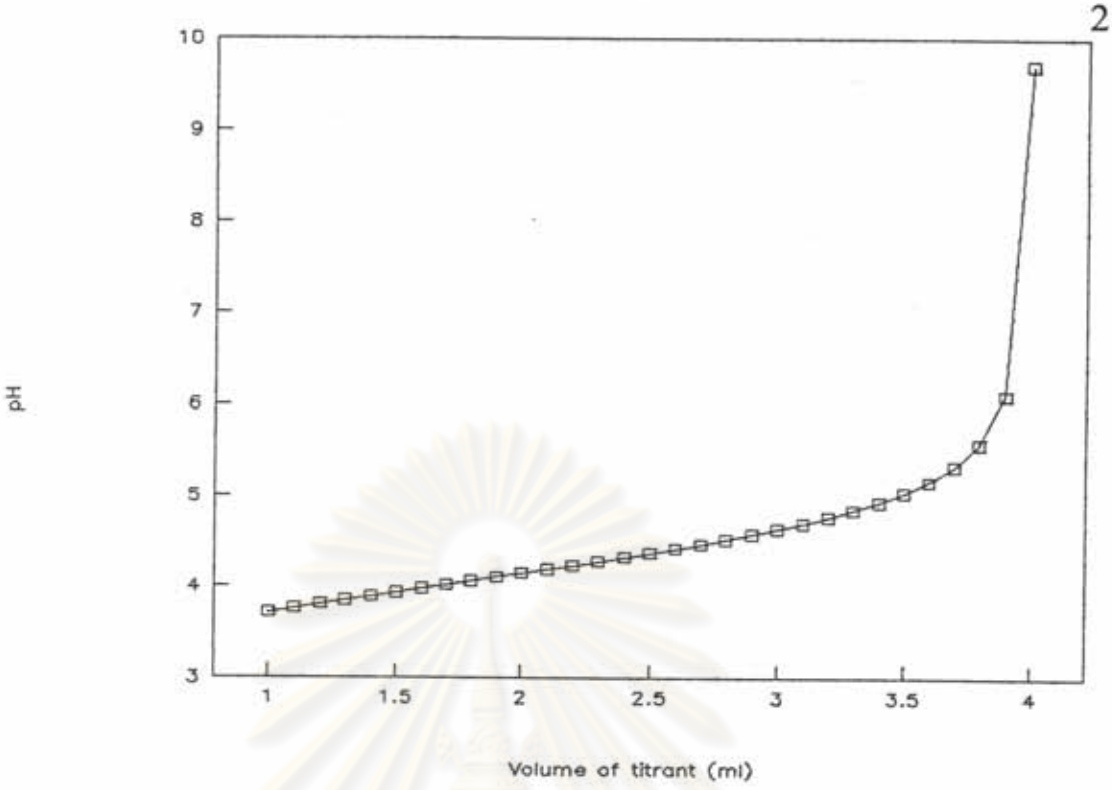

Fig. 9 : Titration curve of benzoic acid (equivalent volume = 4 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

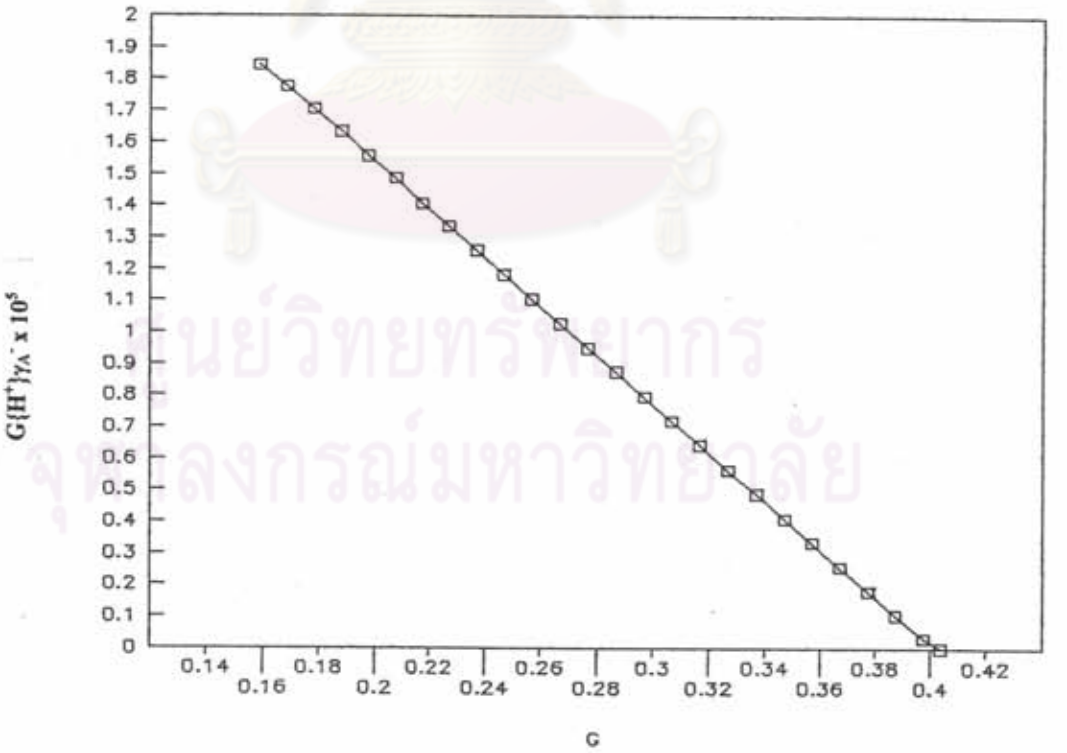

Fig.10 : G plot for the titration of benzoic acid (equivalent volume = 4 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

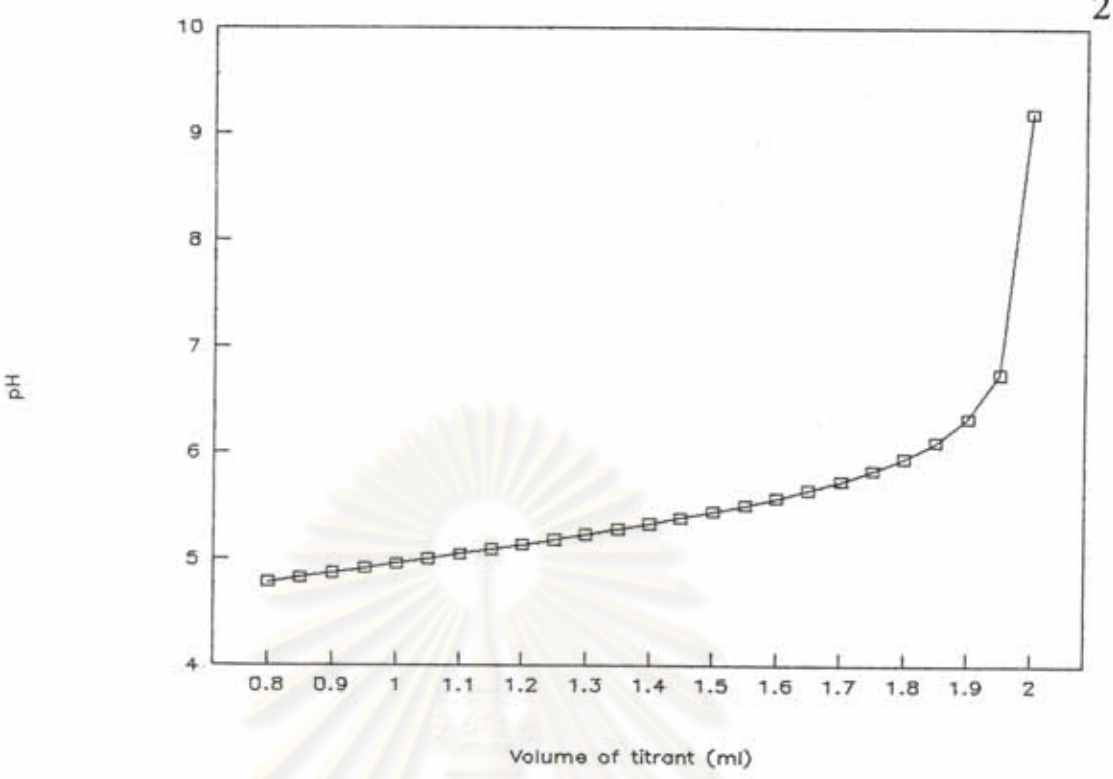

Fig. 11: Titration curve of pivalic acid (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

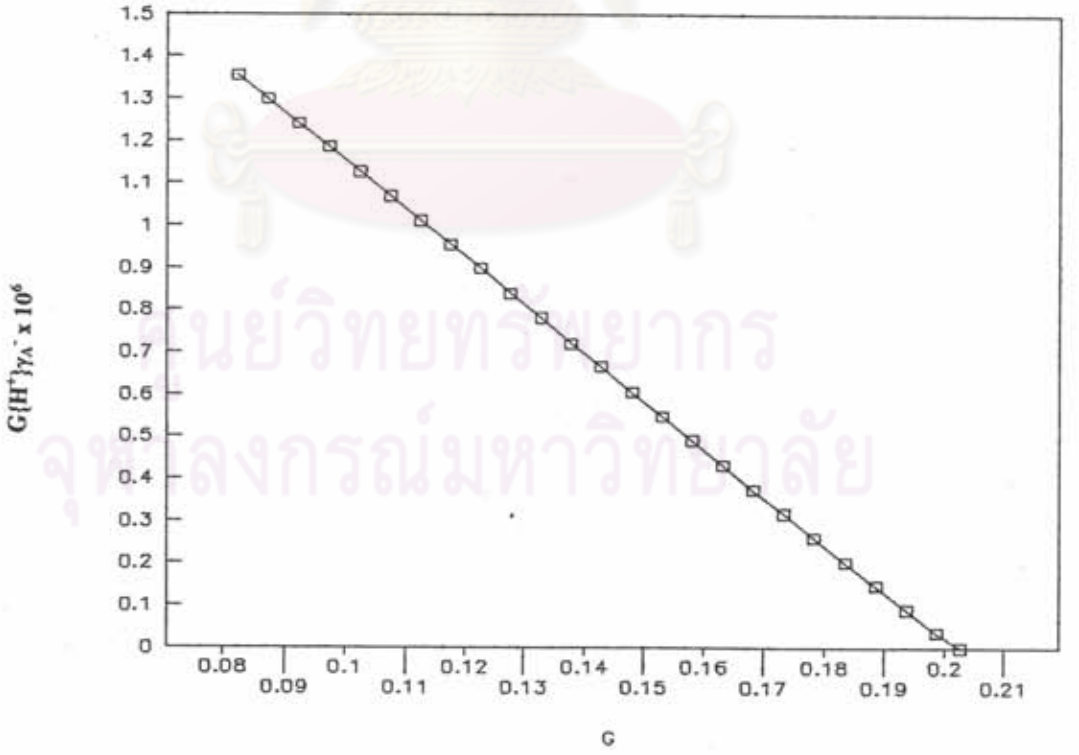

Fig.12 : G plot for the titration of pivalic acid (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

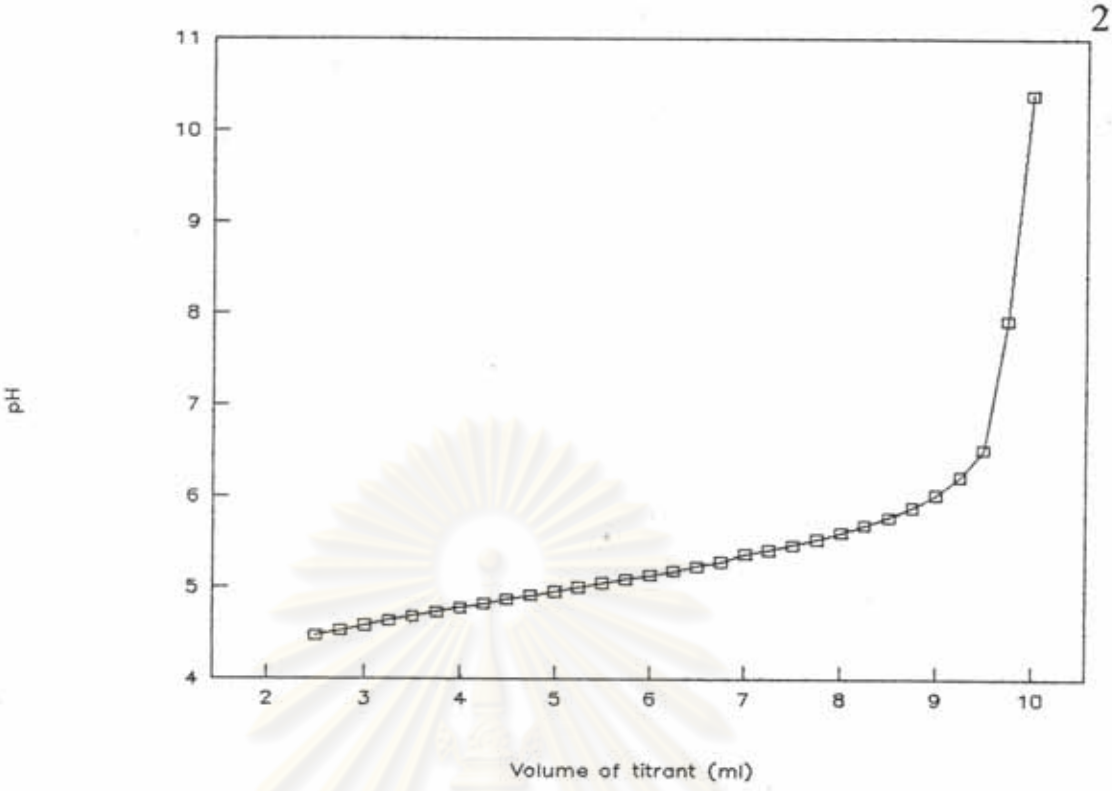

Fig. 13 : Titration curve of pivalic acid (equivalent volume = 10 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

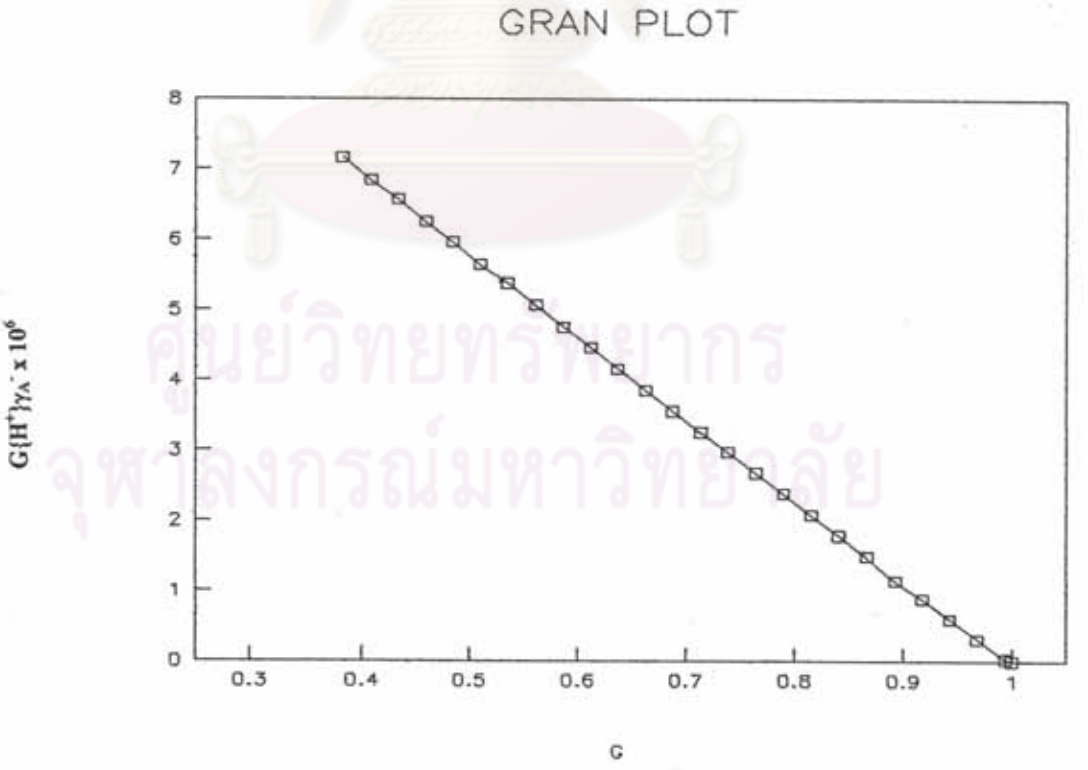

Fig.14 : G plot for the titration of pivalic acid (equivalent volume = 10 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution

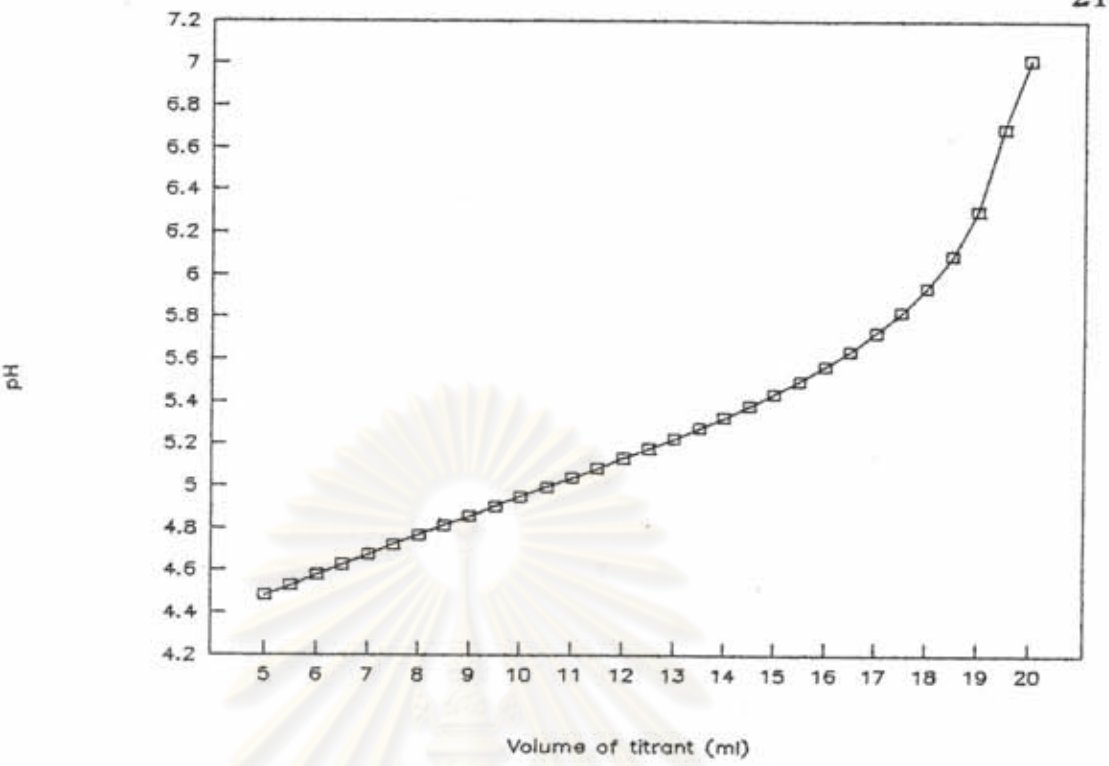

Fig. 15 : Titration curve of pivalic acid (equivalent volume = 20 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

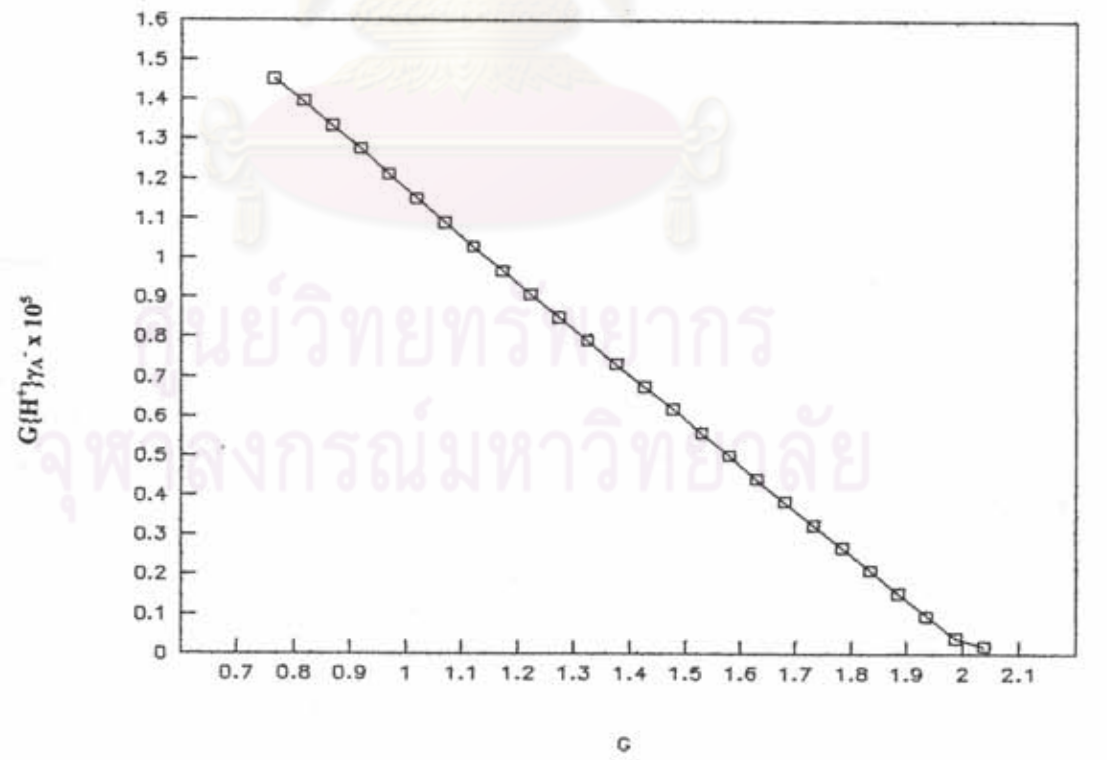

Fig.16 : G plot for the titration of pivalic acid (equivalent volume = 20 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

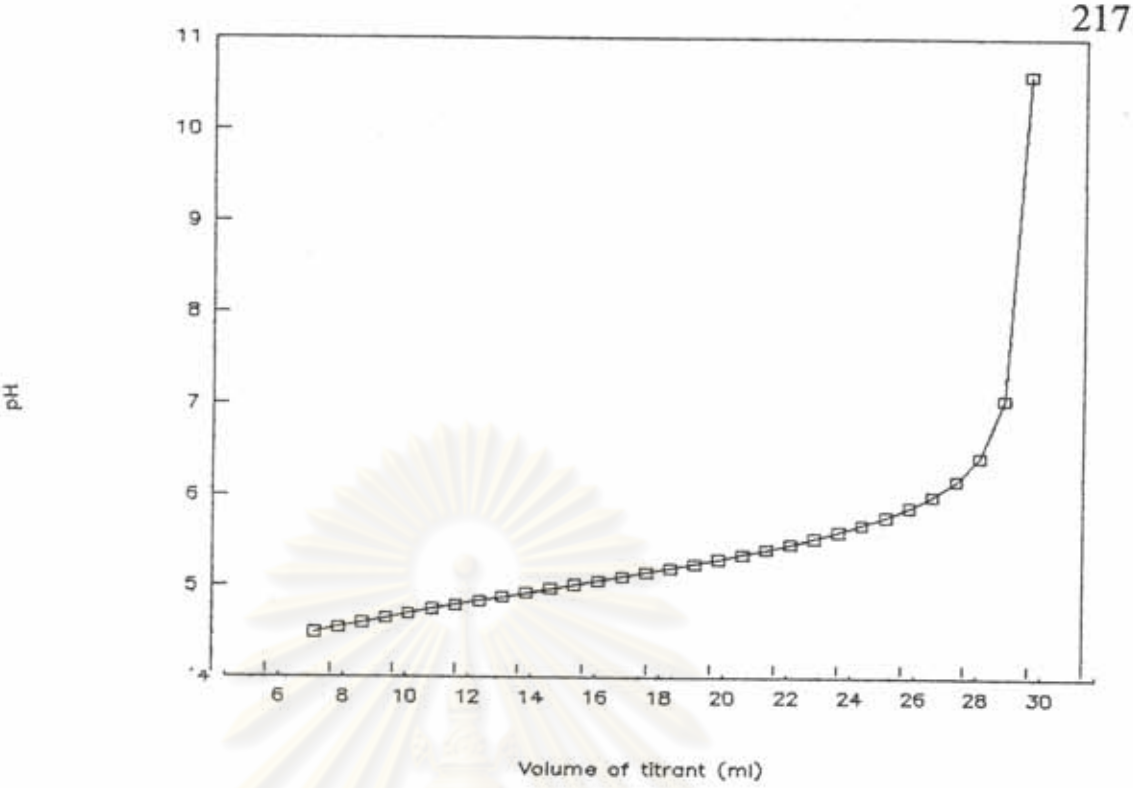

Fig. 17 : Titration curve of pivalic acid (equivalent volume = 30 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

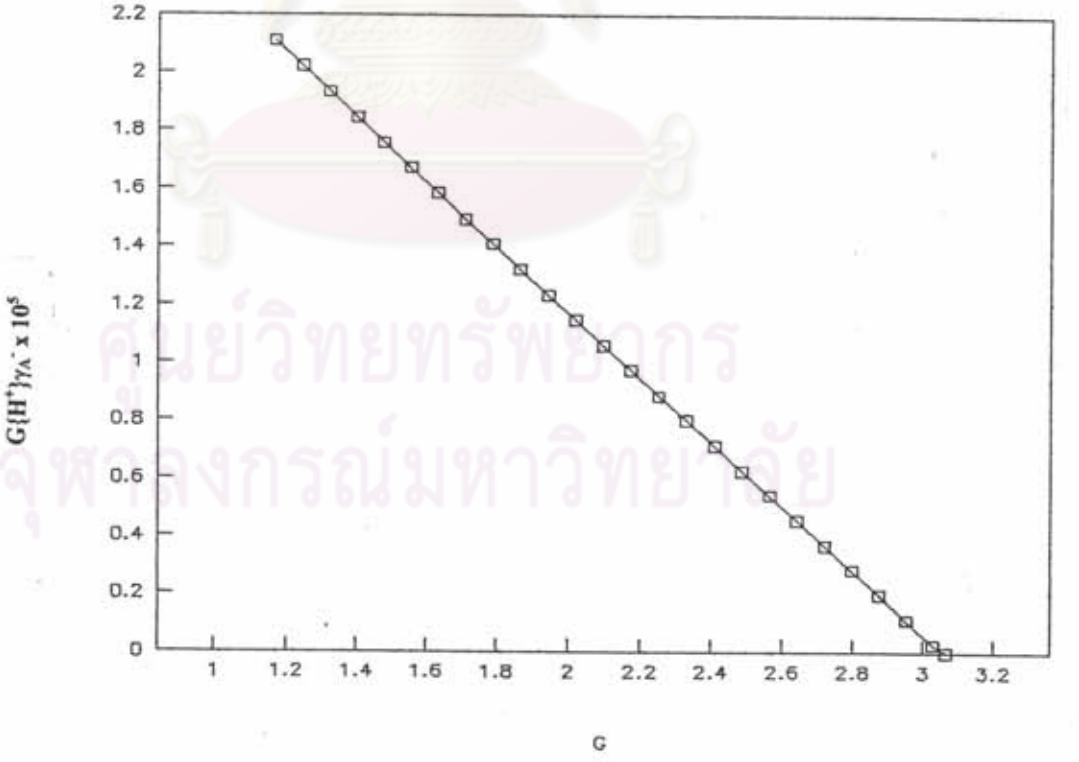

Fig. 18 : G plot for the titration of pivalic acid (equivalent volume = 30 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

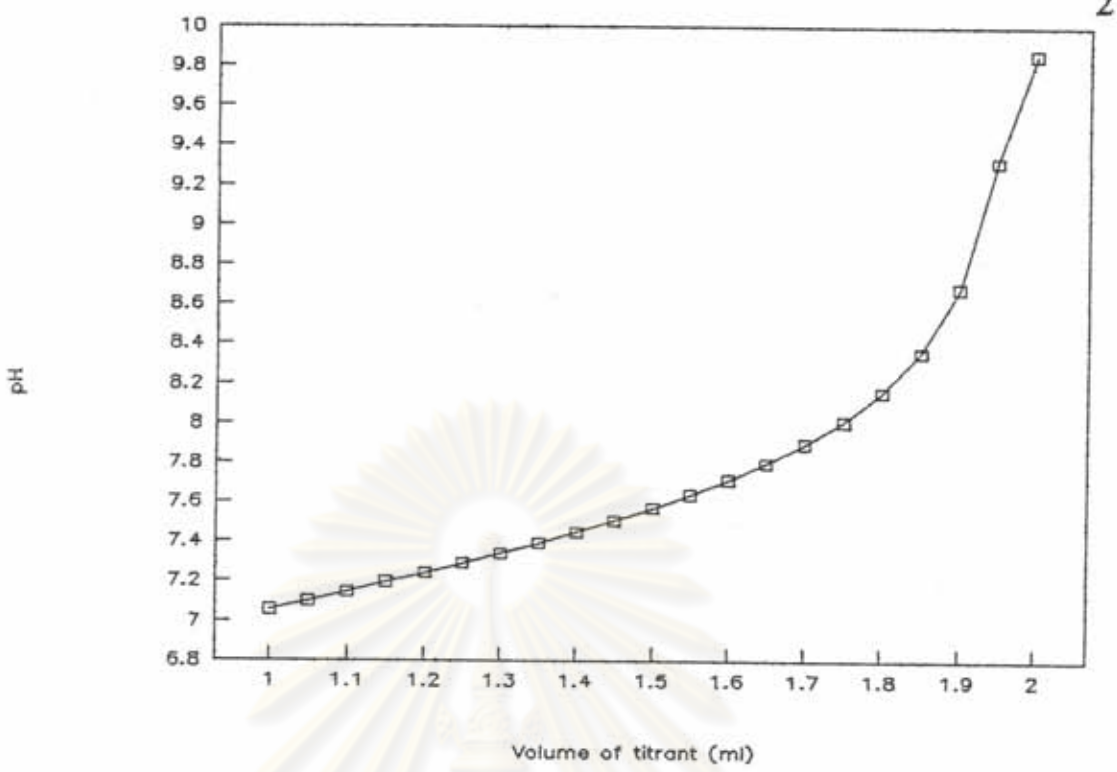

Fig. 19 : Titration curve of p-nitrophenol (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

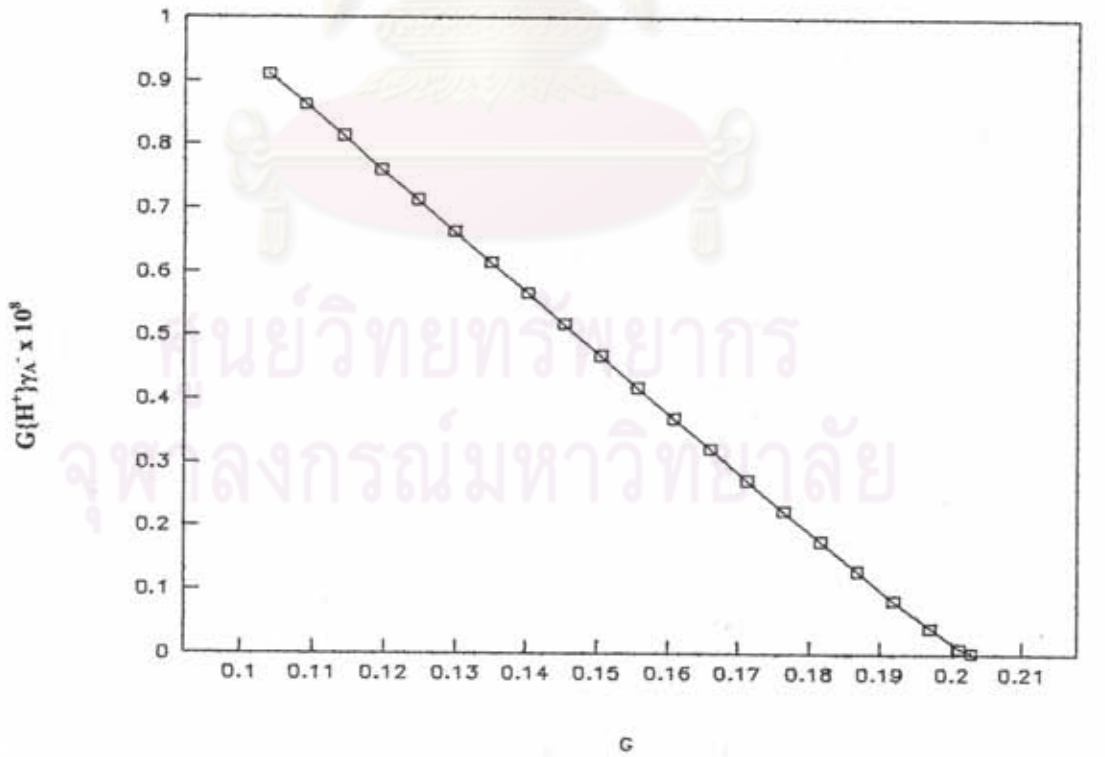

Fig. 20 : G plot for the titration of p-nitrophenol (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

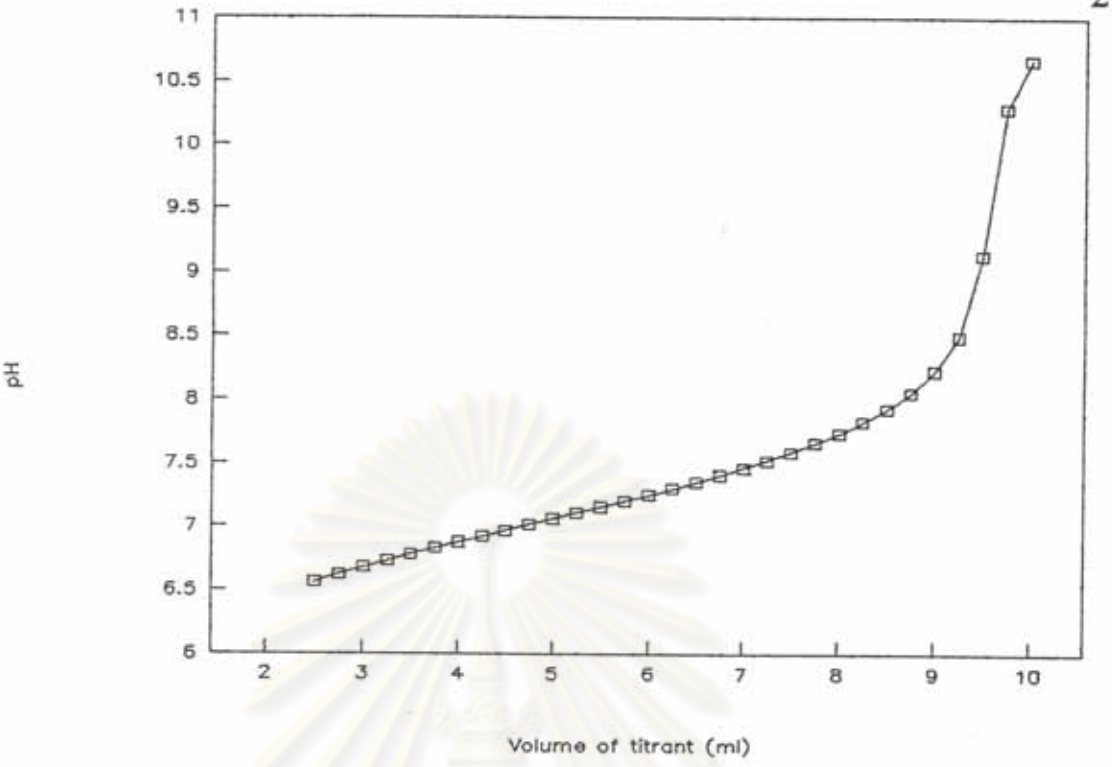

Fig. 21 : Titration curve of p-nitrophenol (equivalent volume = 10 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

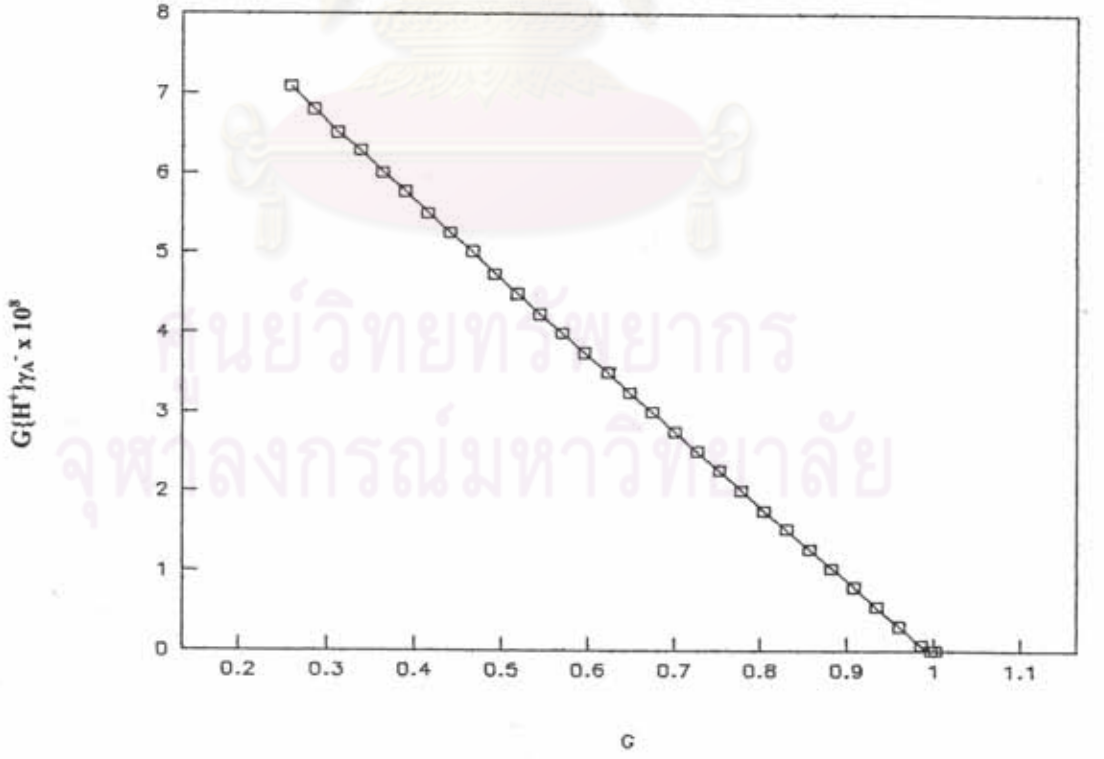

Fig.22 : G plot for the titration of p-nitrophenol (equivalent volume = 10 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution

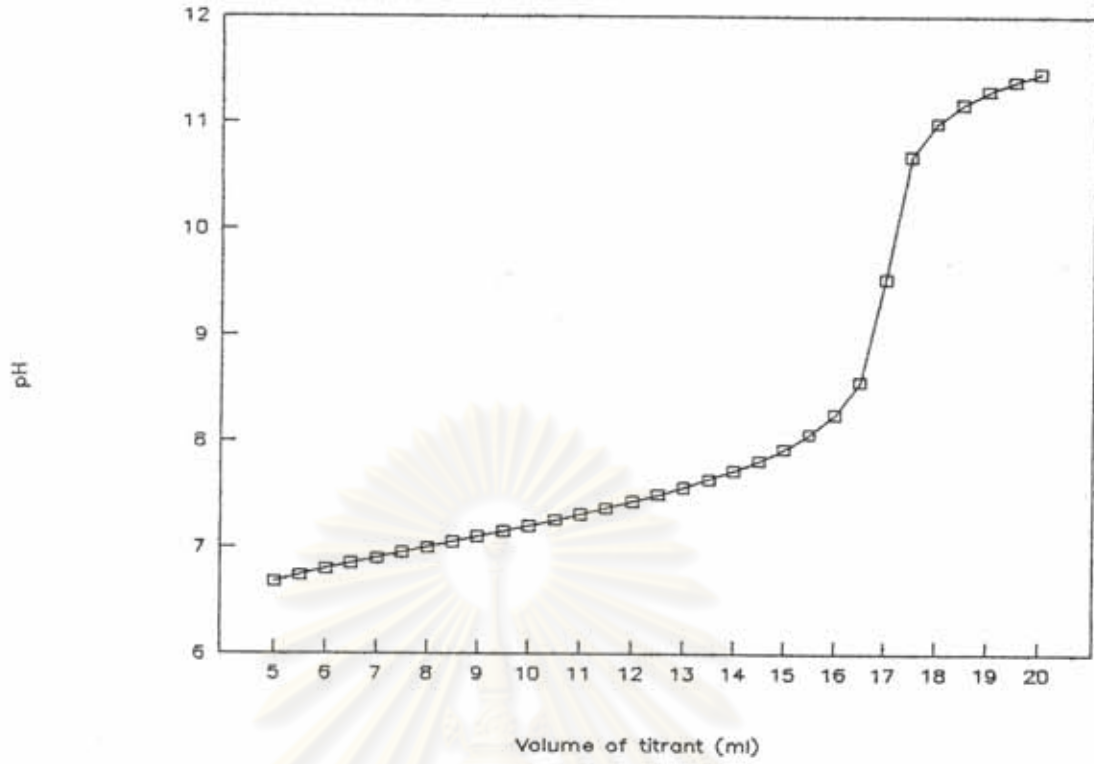

Fig. 23 : Titration curve of p-nitrophenol (equivalent volume = 20 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

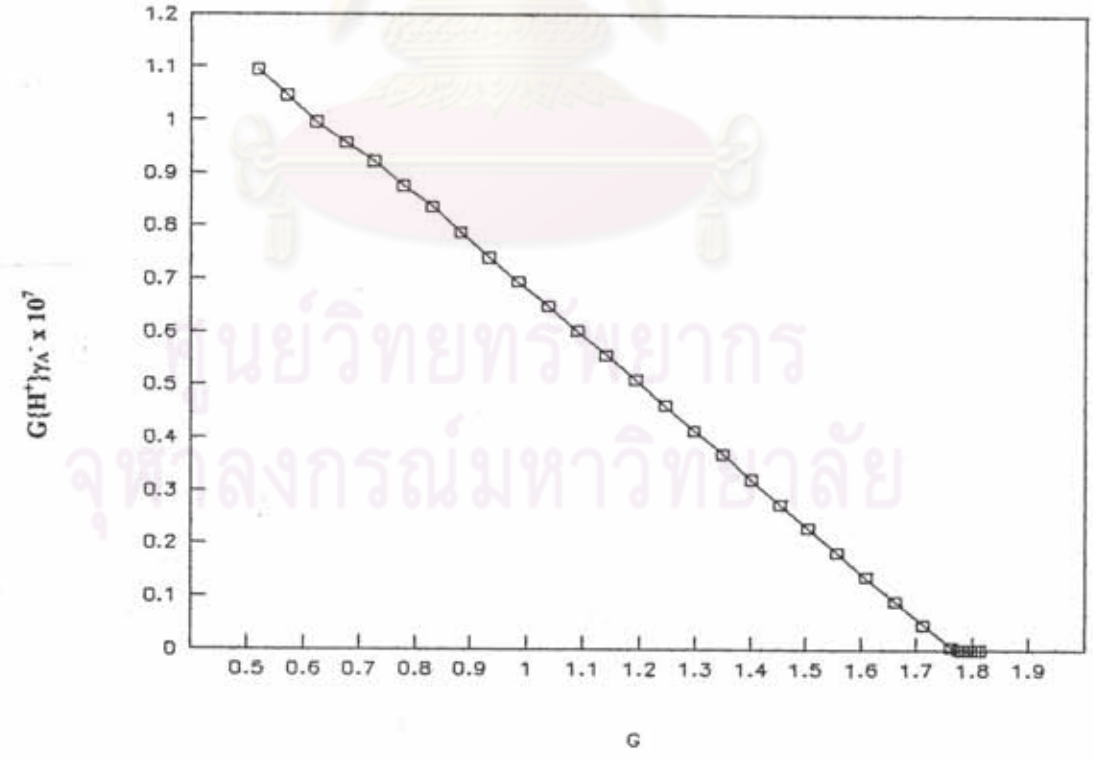

Fig. 24 : G plot for the titration of p-nitrophenol (equivalent volume = 20 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

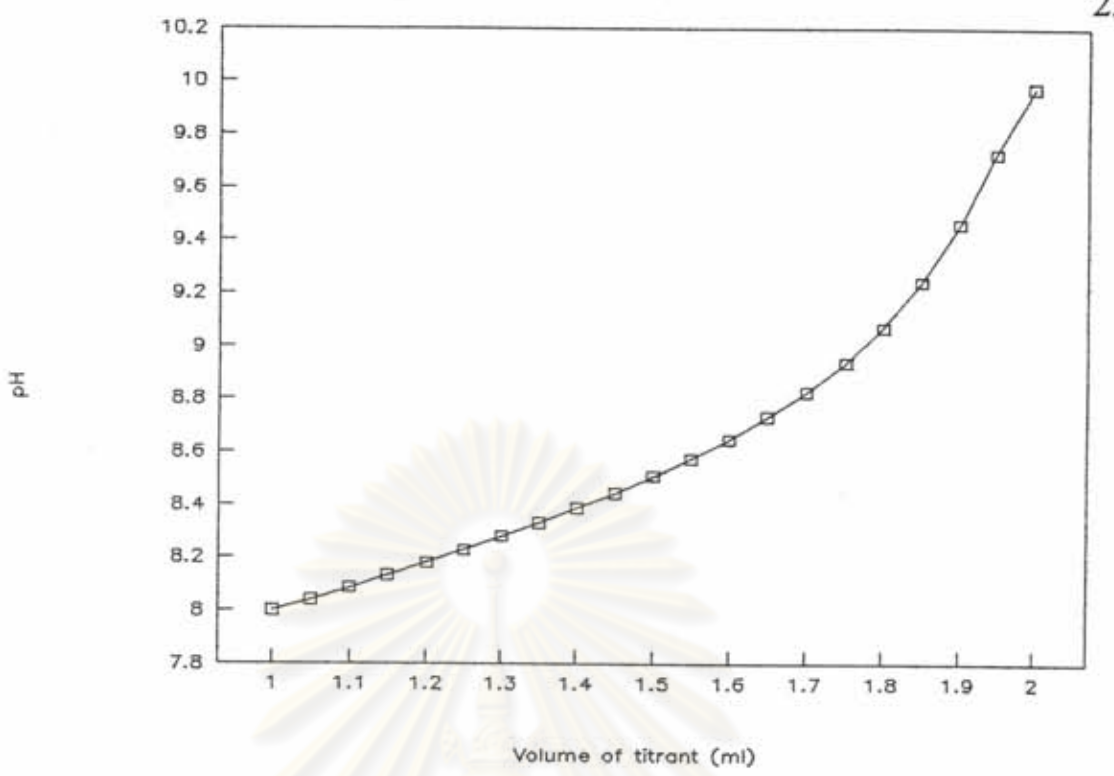

Fig. 25 : Titration curve of pralidoxime chloride (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

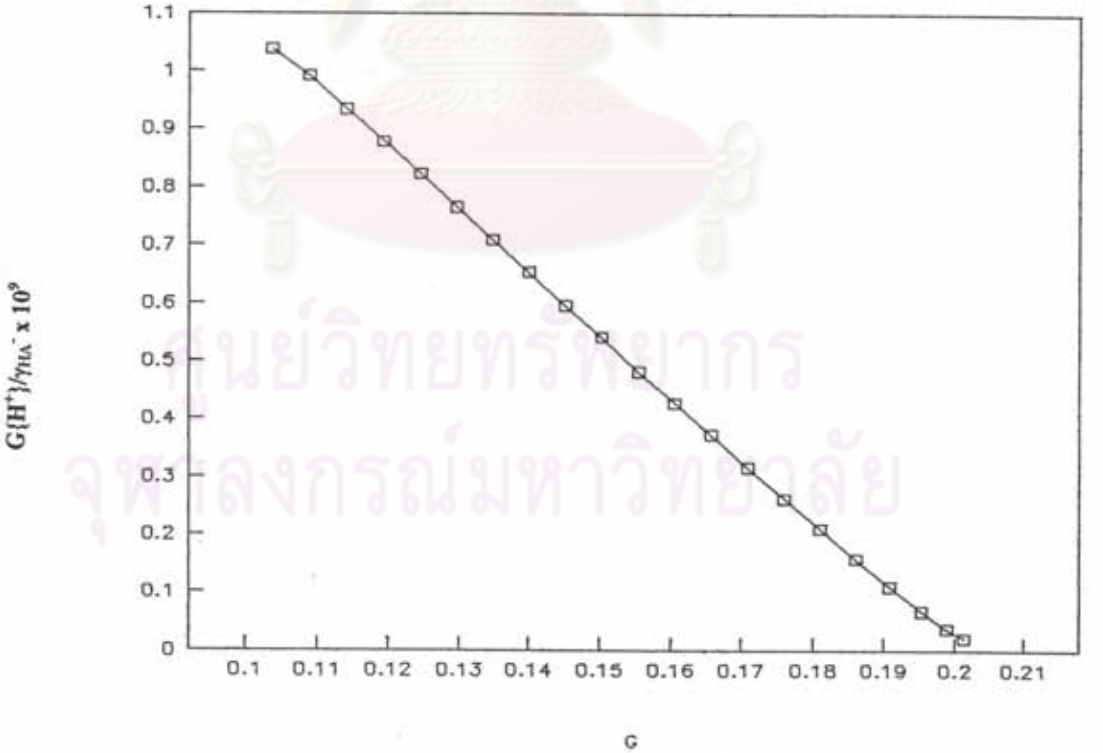

Fig.26 : G plot for the titration pralidoxime chloride (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

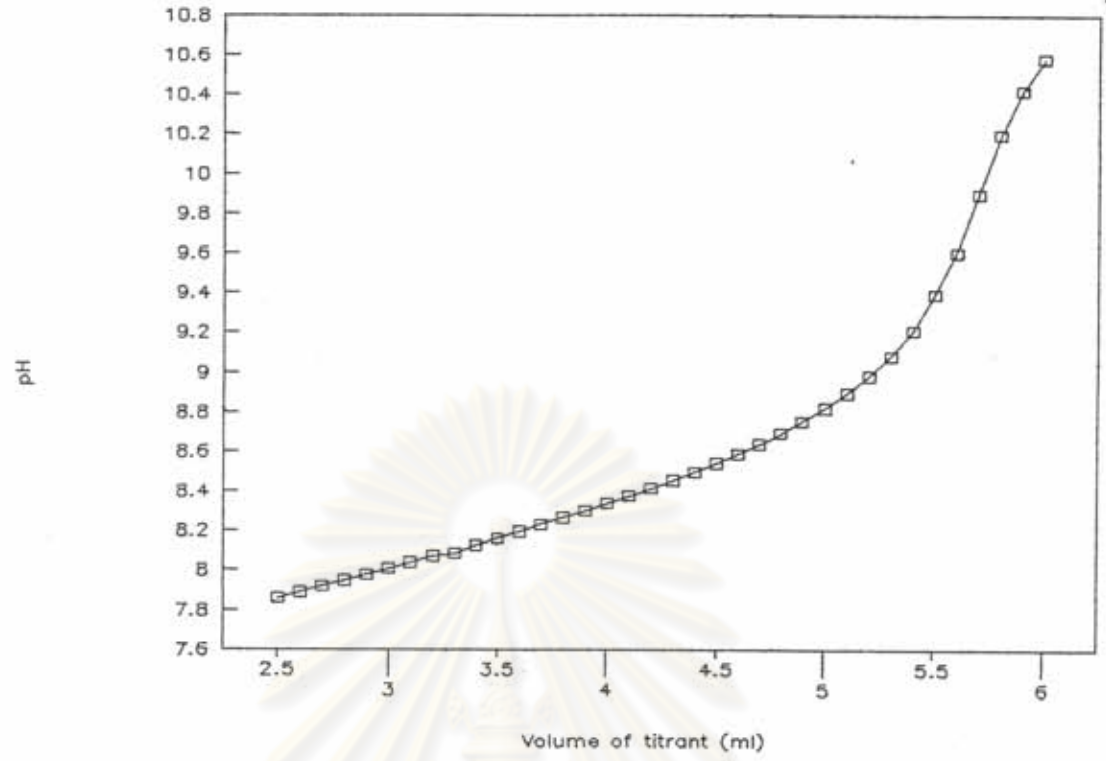

Fig. 27 : Titration curve of pralidoxime chloride (equivalent volume =6 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxid solution.

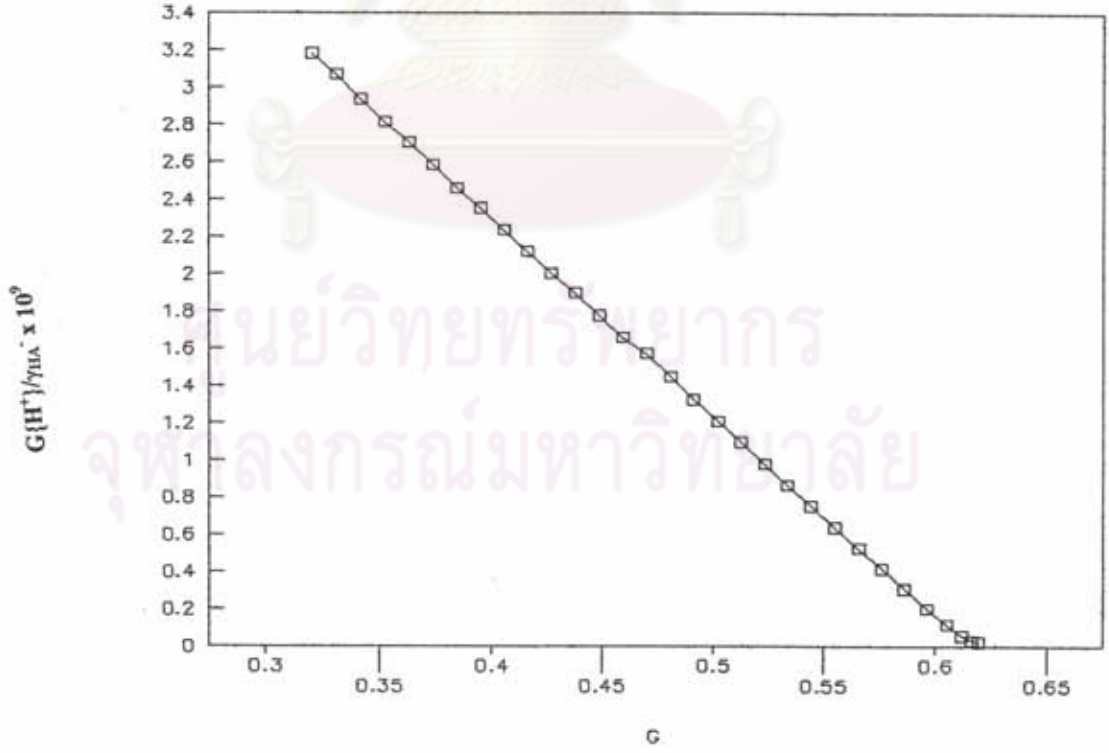

Fig. 28: G plot for the titration of pralidoxime chloride (equivalent volume = 6 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

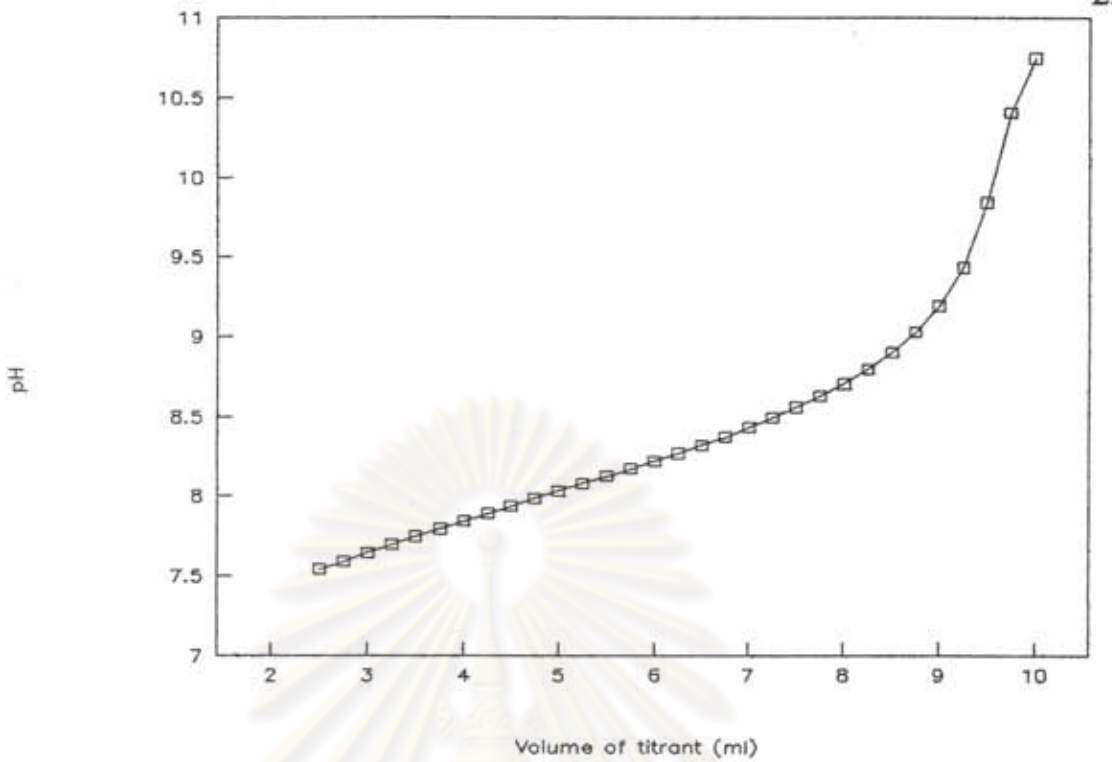

Fig. 29 : Titration curve of pralidoxime chloride (equivalent volume = 10 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

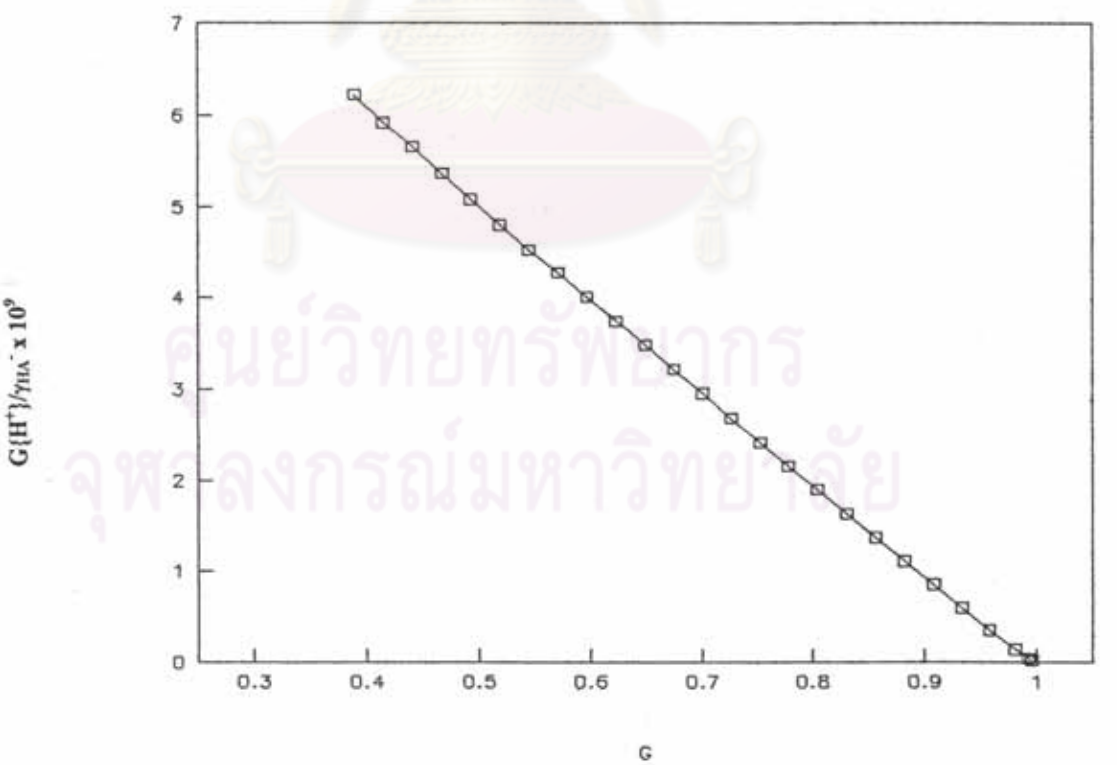

Fig. 30 : G plot for the titration of pralidoxime chloride (equivalent volume = 10 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

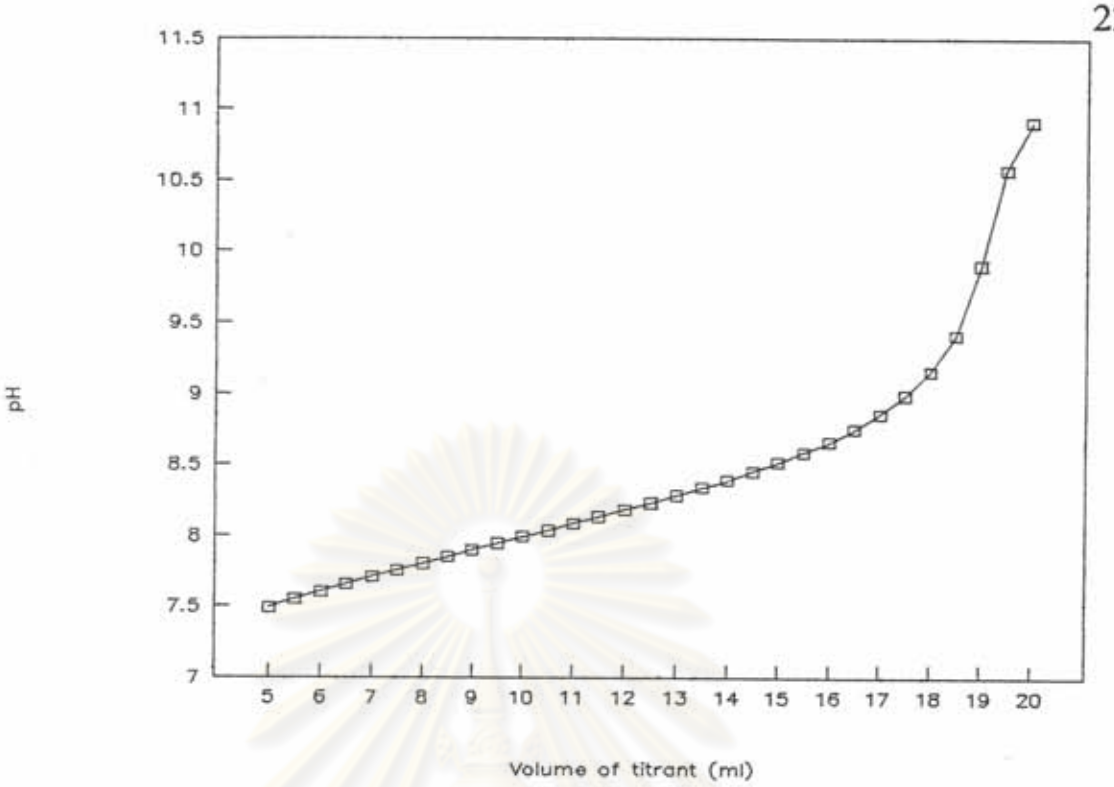

Fig. 31 : Titration curve of pralidoxime chloride (equivalent volume = 20 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

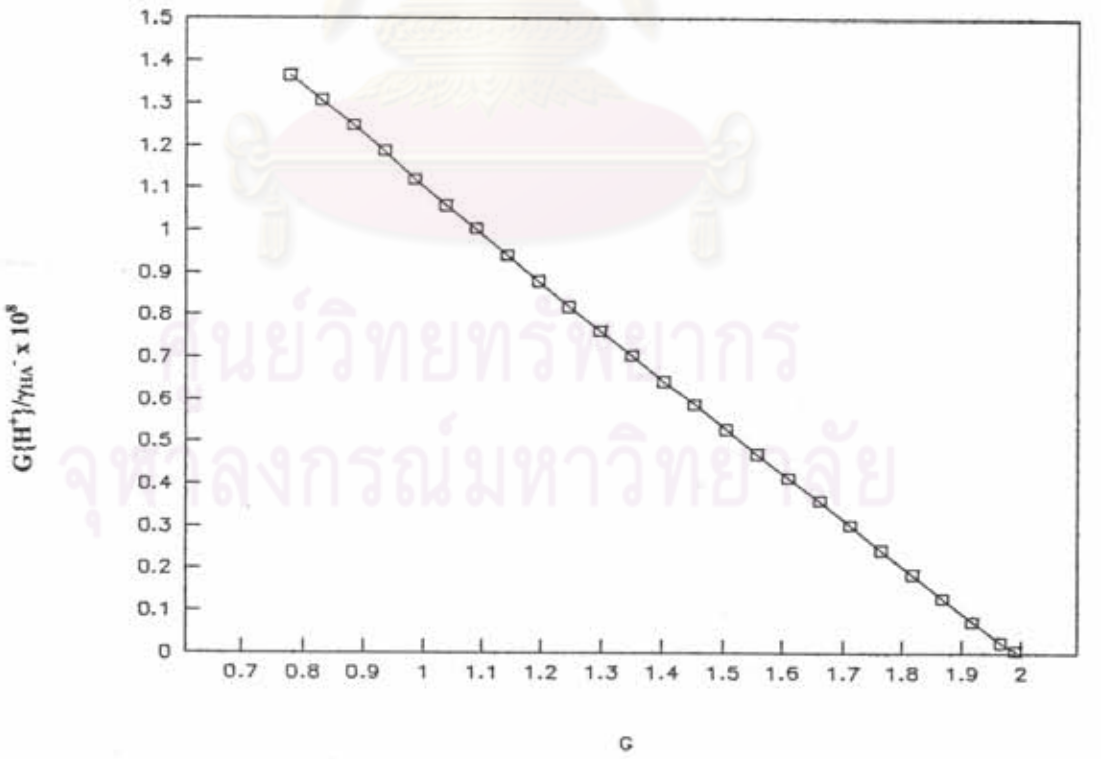

Fig.32 : G plot for the titration of pralidoxime chloride (equivalent volume = 20 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

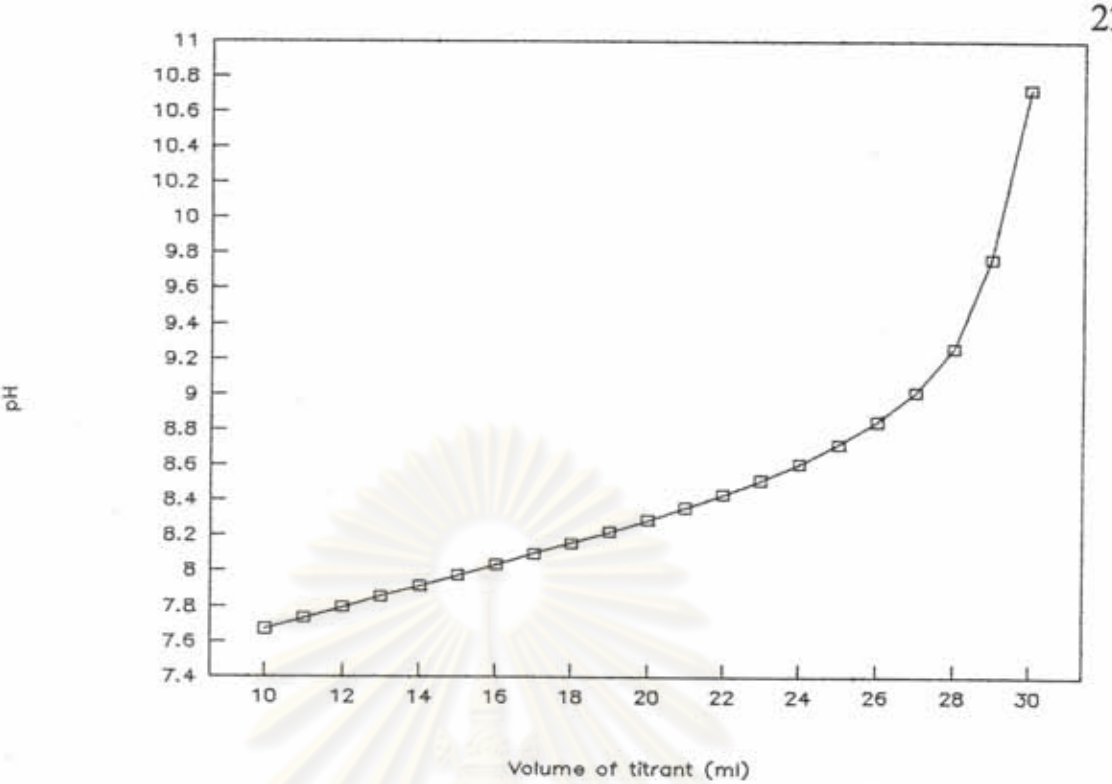

Fig.33 : Titration curve of pralidoxime chloride (equivalent volume = 30 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

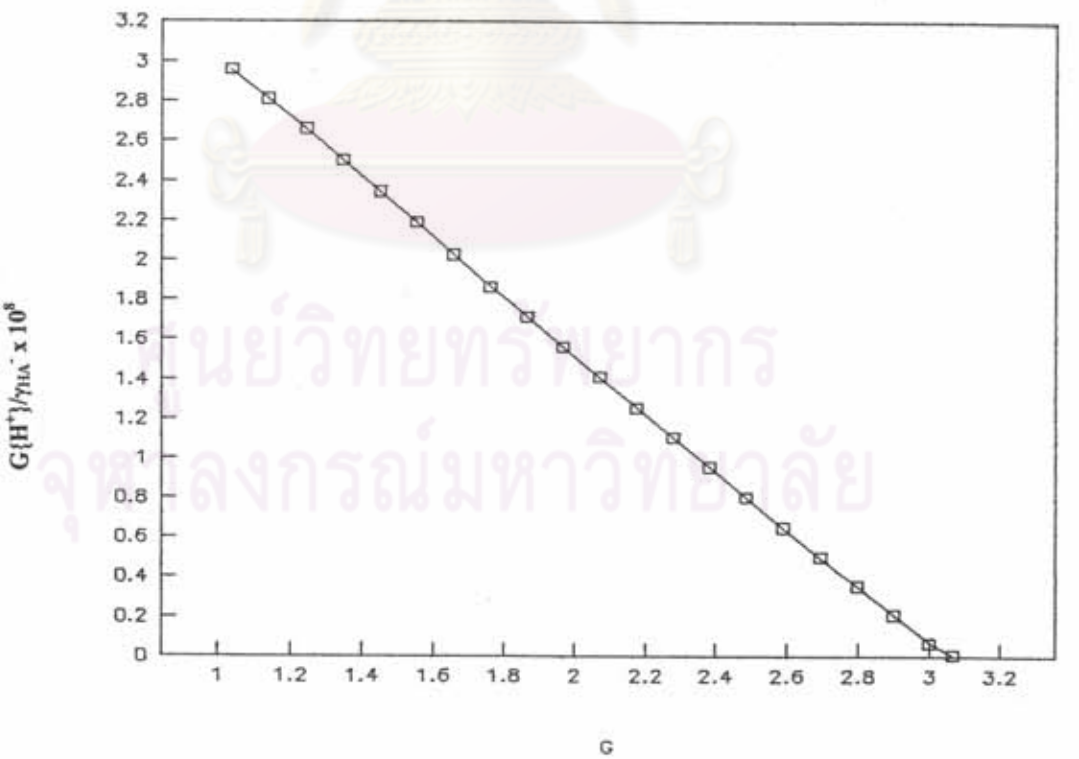

Fig. 34 : G plot for the titration of pralidoxime chloride (equivalent volume = 30 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

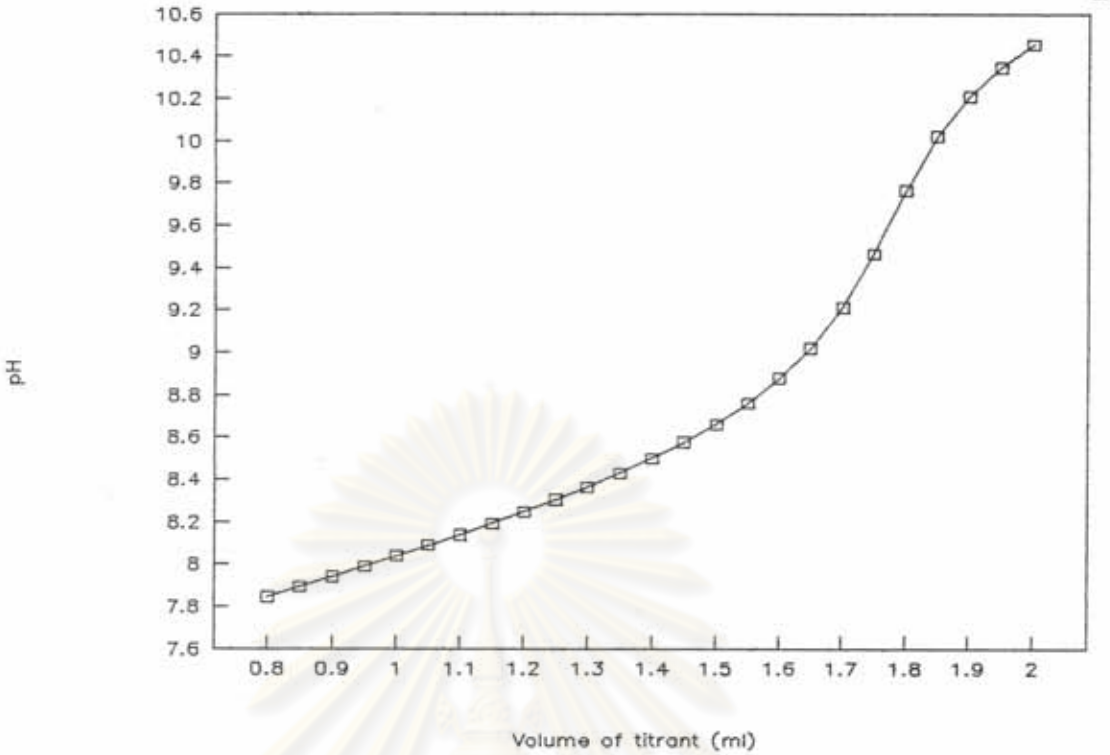

Fig.35 : Titration curve of lidocaine hydrochloride (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

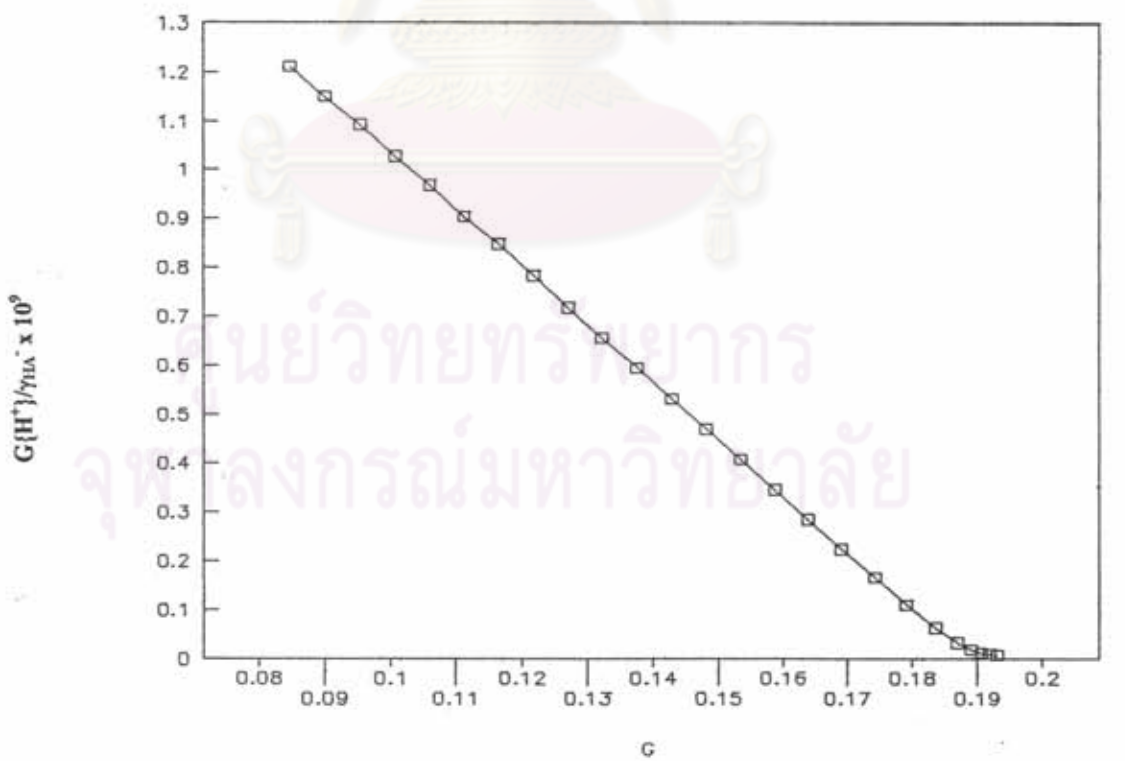

Fig. 36 : G plot for the titration of lidocaine hydrochloride (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

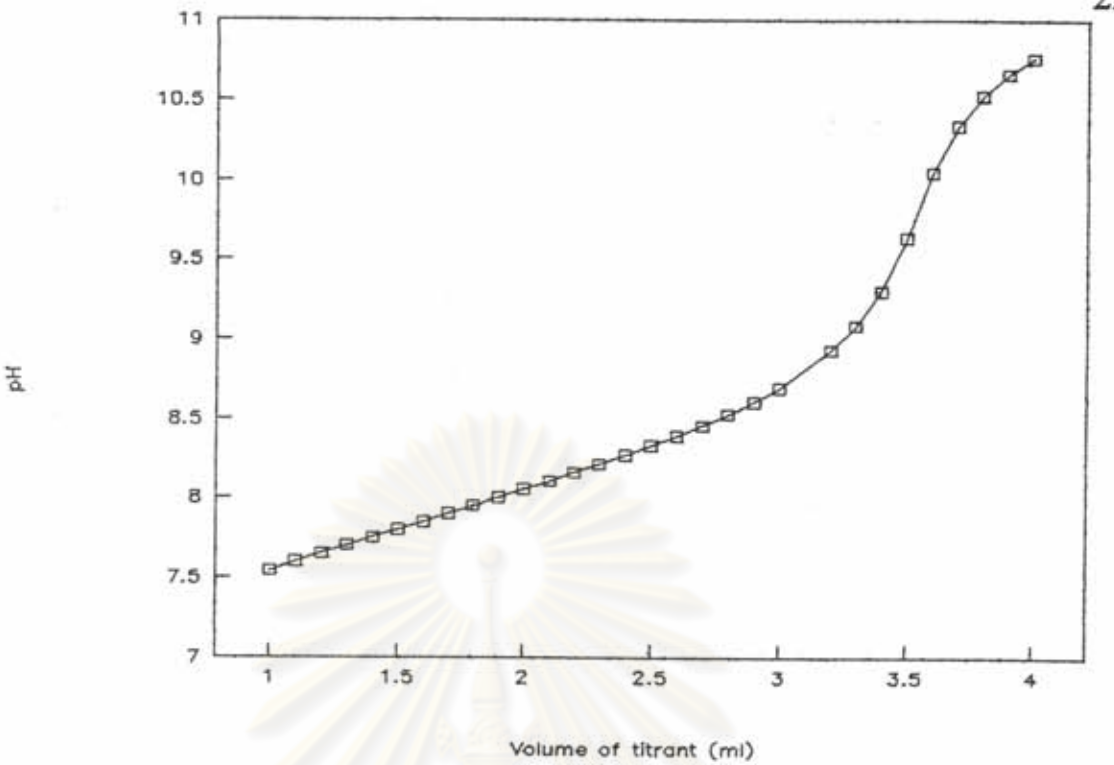

Fig.37 : Titration curve of lidocaine hydrochloride (equivalent volume = 4 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

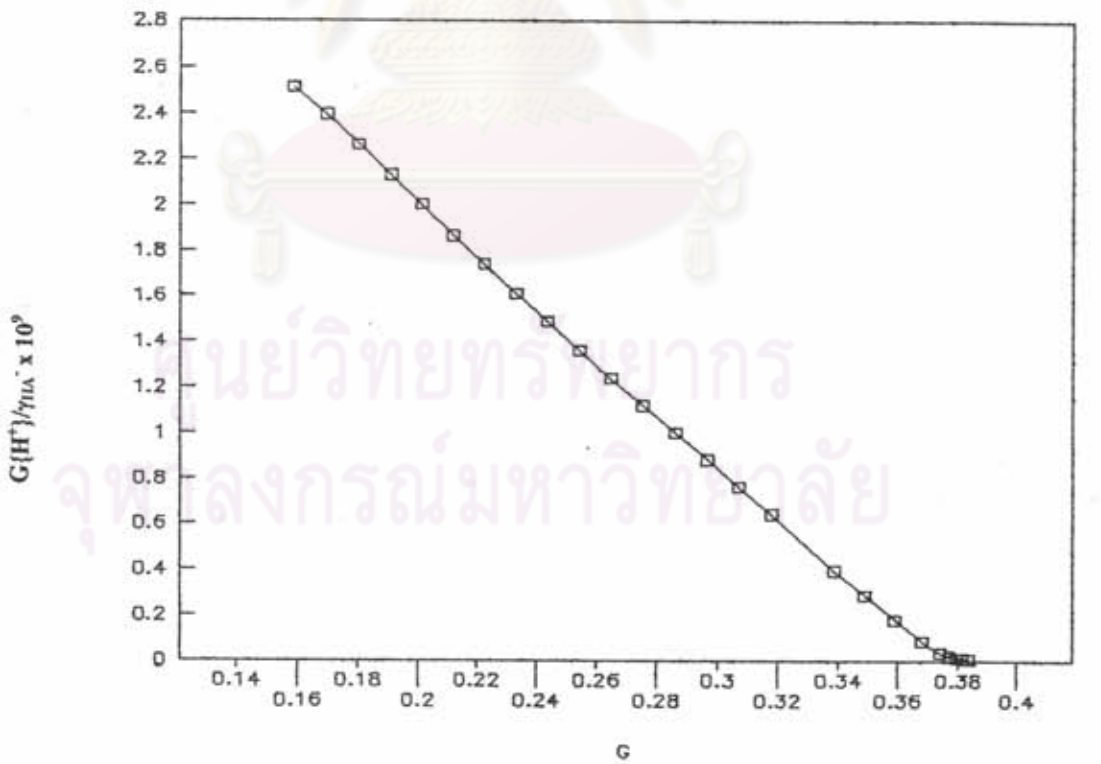

Fig. 38 : G plot for the titration of lidocaine hydrochloride (equivalent volume = 4 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

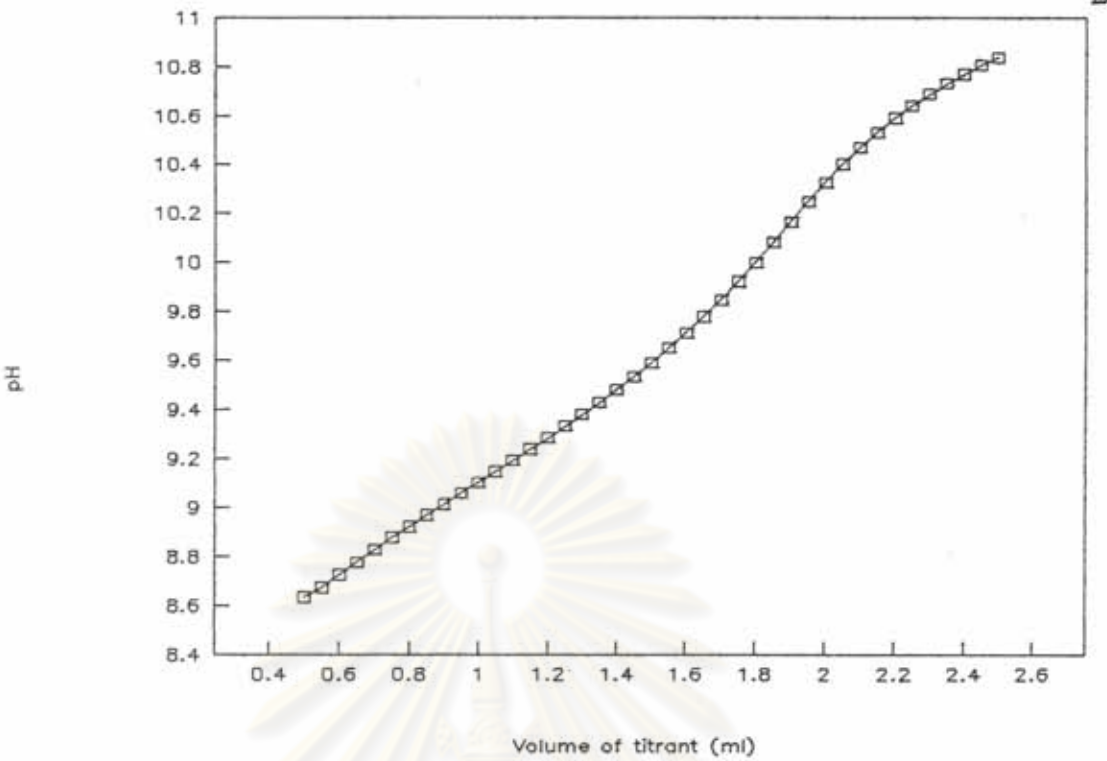

Fig.39 : Titration curve of boric acid (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

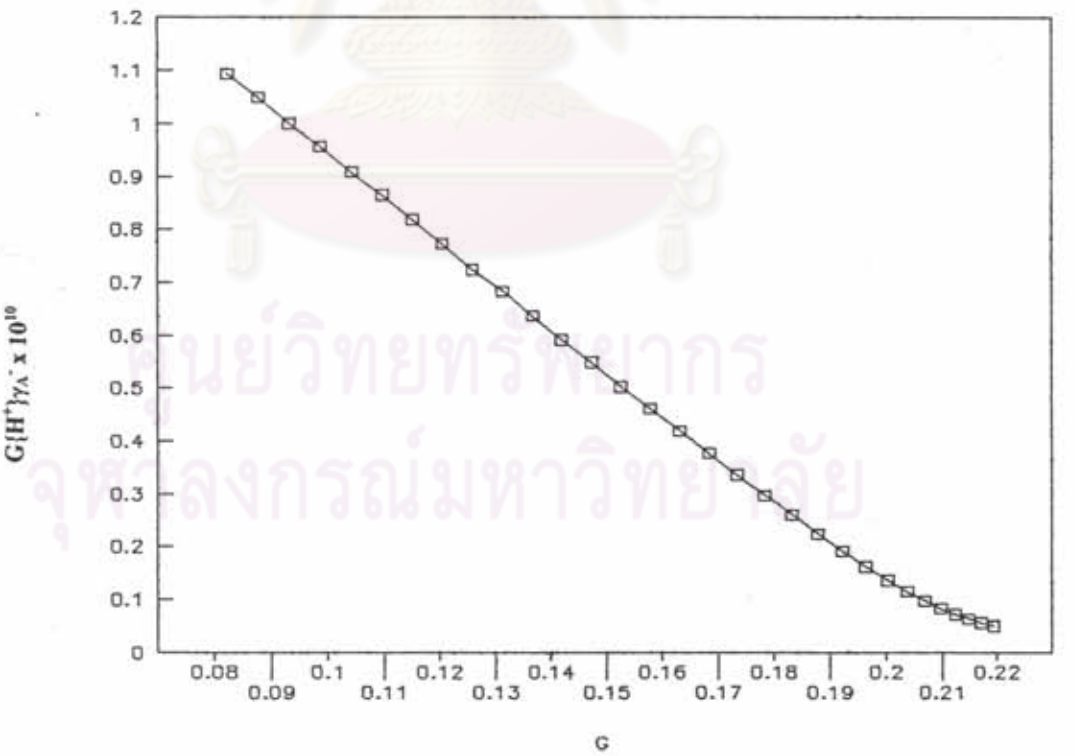

Fig. 40 : G plot for the titration of boric acid (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

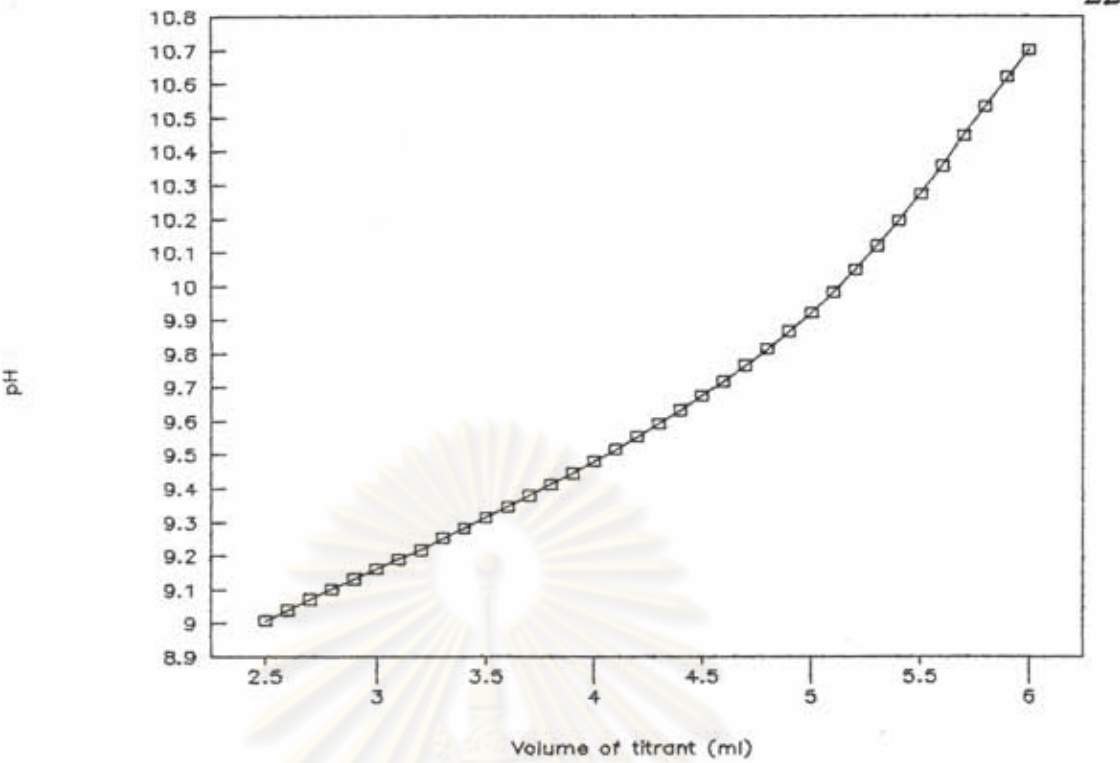

Fig. 41 : Titration curve of boric acid (equivalent volume = 6 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

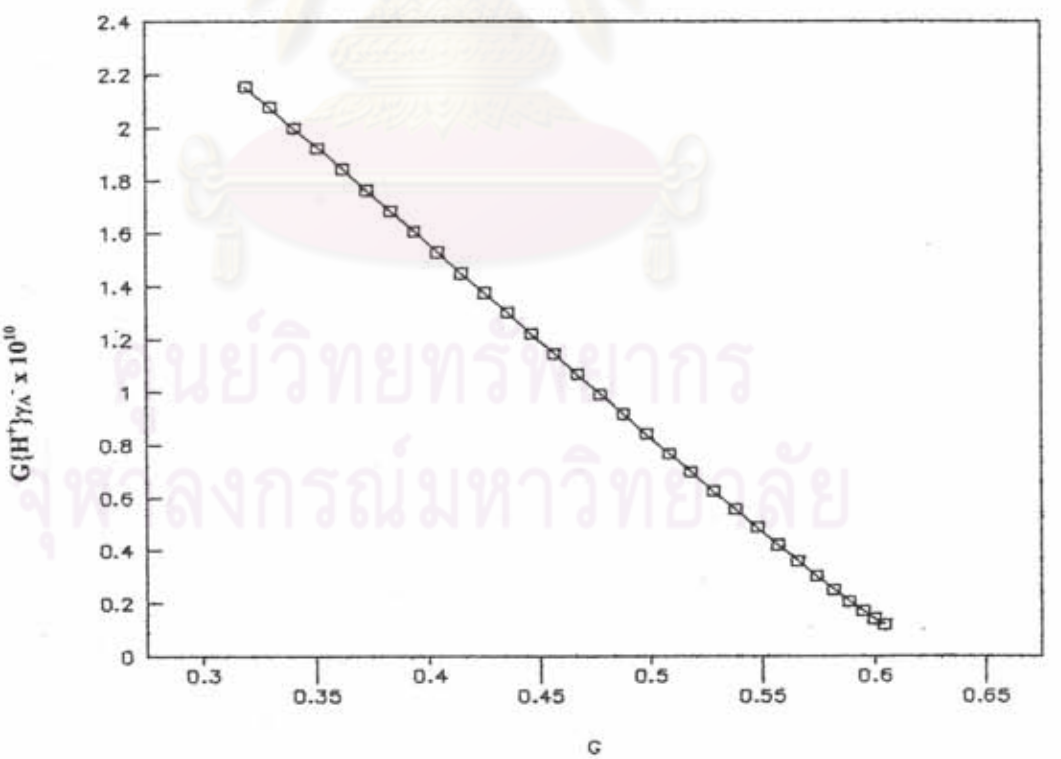

Fig. 42 : G plot for the titration of boric acid (equivalent volume = 6 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

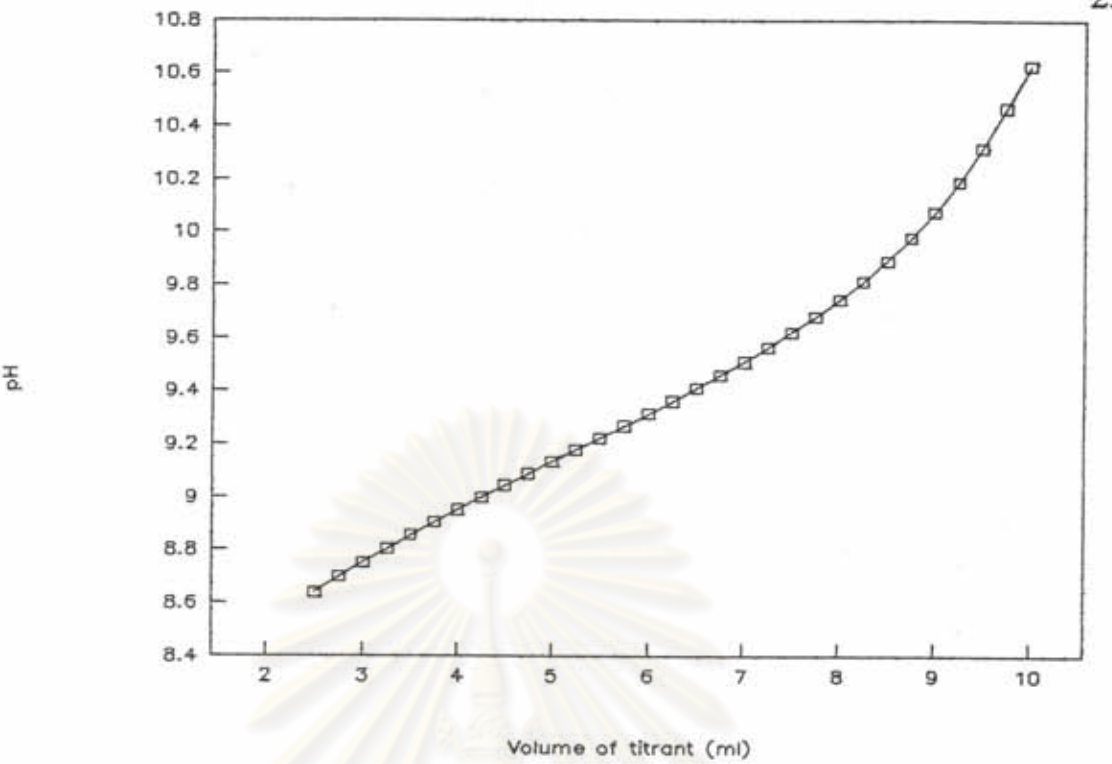

Fig. 43 : Titration curve of boric acid (equivalent volume = 10 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

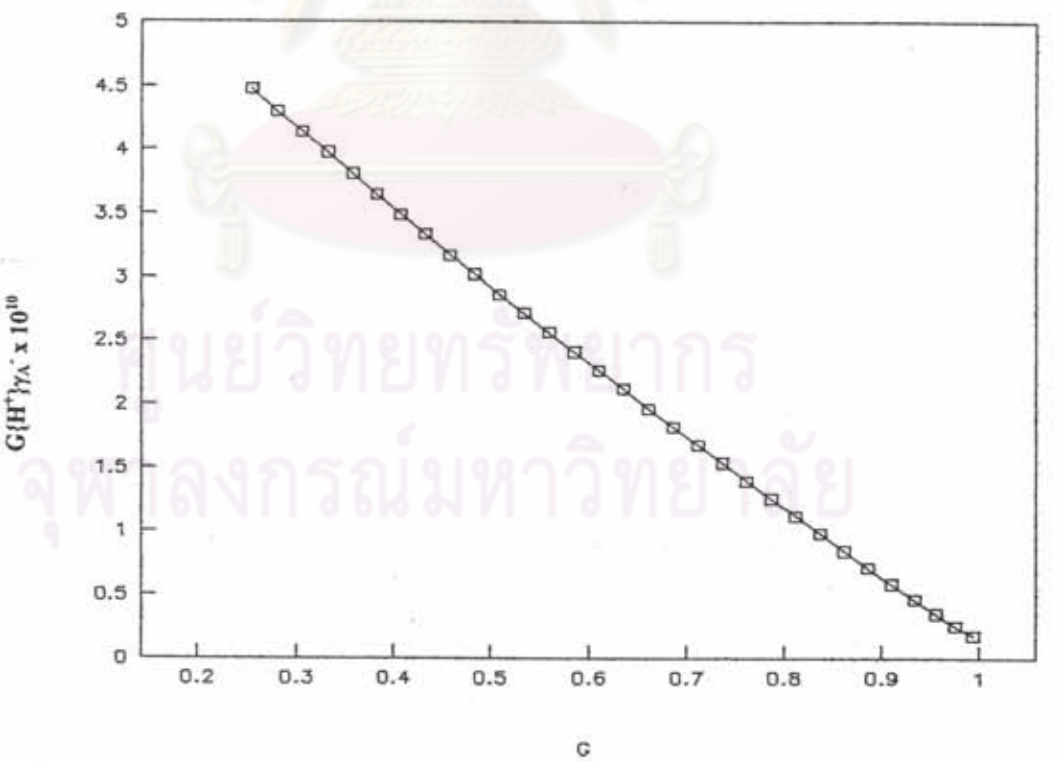

Fig. 44 : G plot for the titration of boric acid (equivalent volume = 10 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

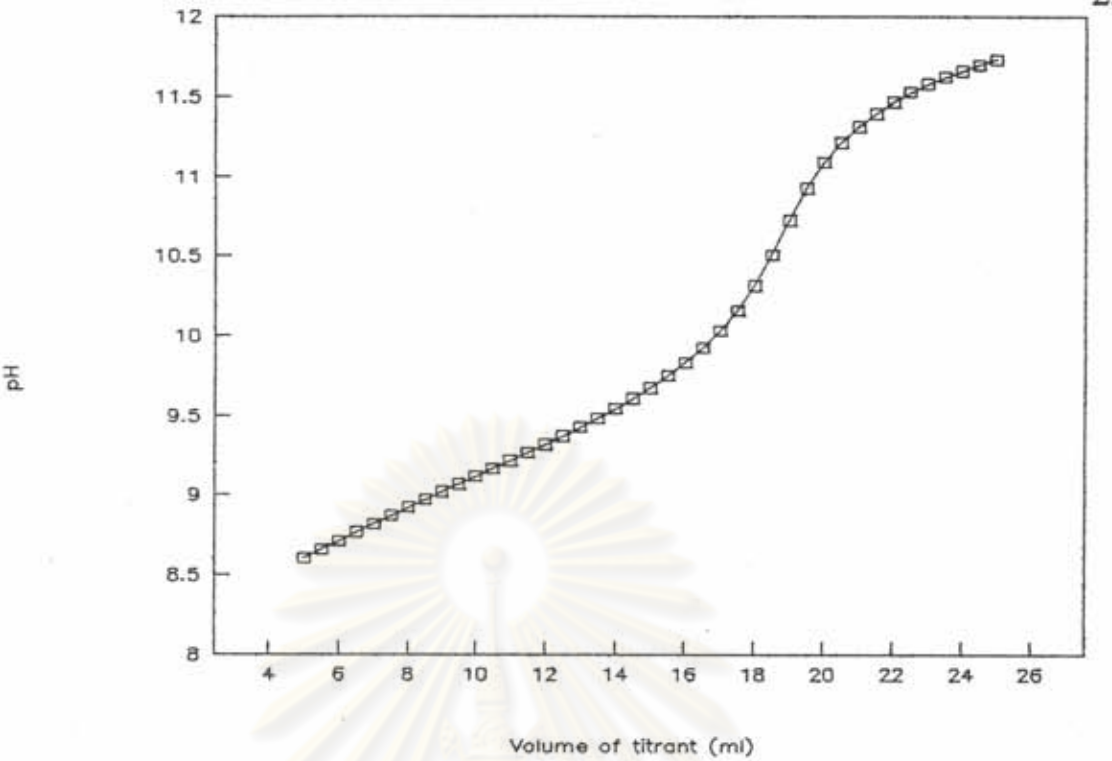

Fig.45 : Titration curve of boric acid (equivalent volume = 20 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

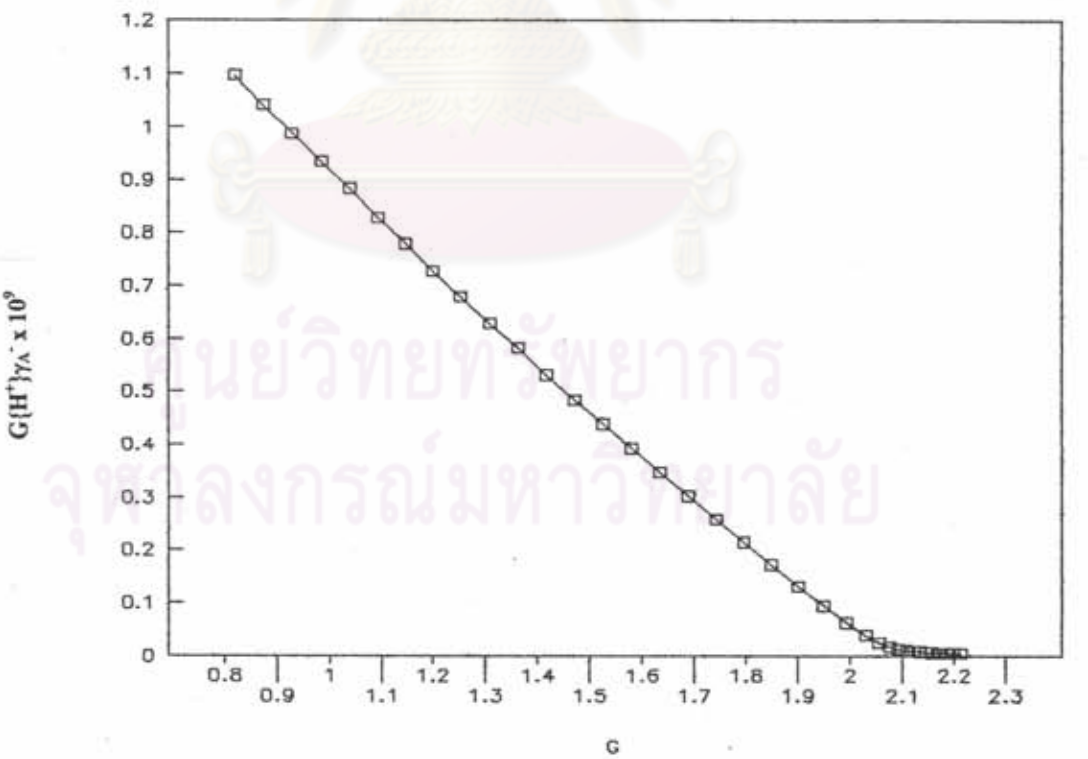

Fig. 46 : G plot for the titration of boric acid (equivalent volume = 20 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

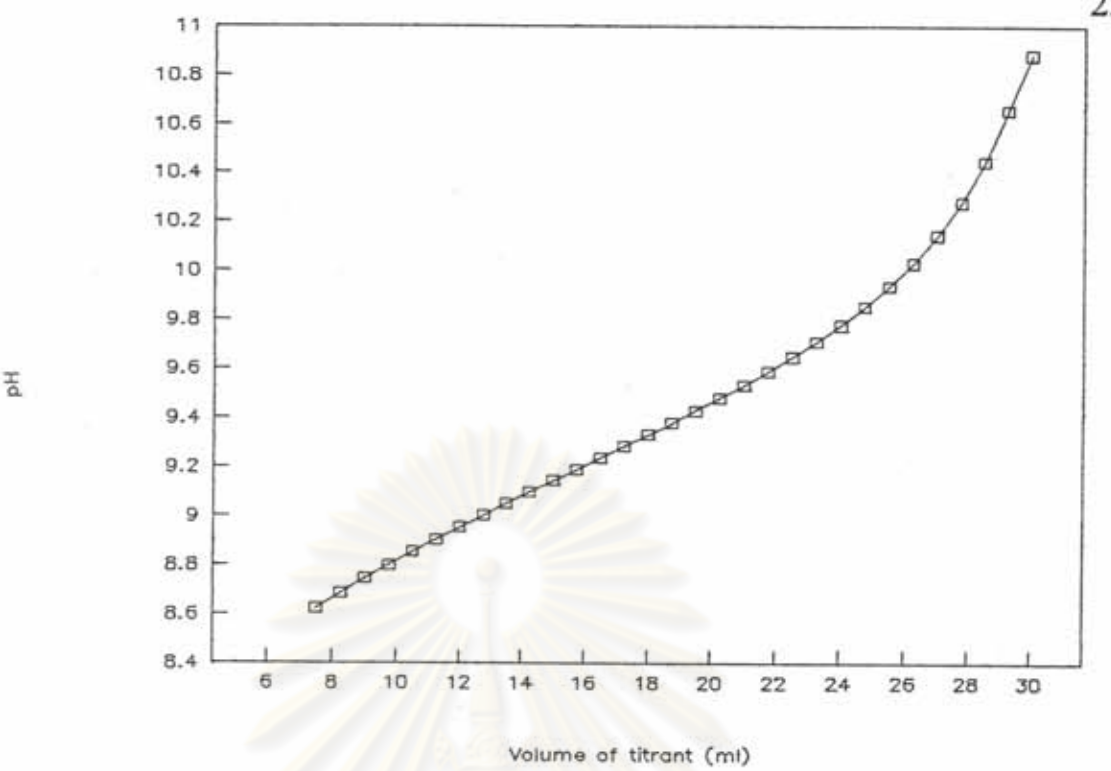

Fig.47 : Titration curve of boric acid (equivalent volume = 30 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

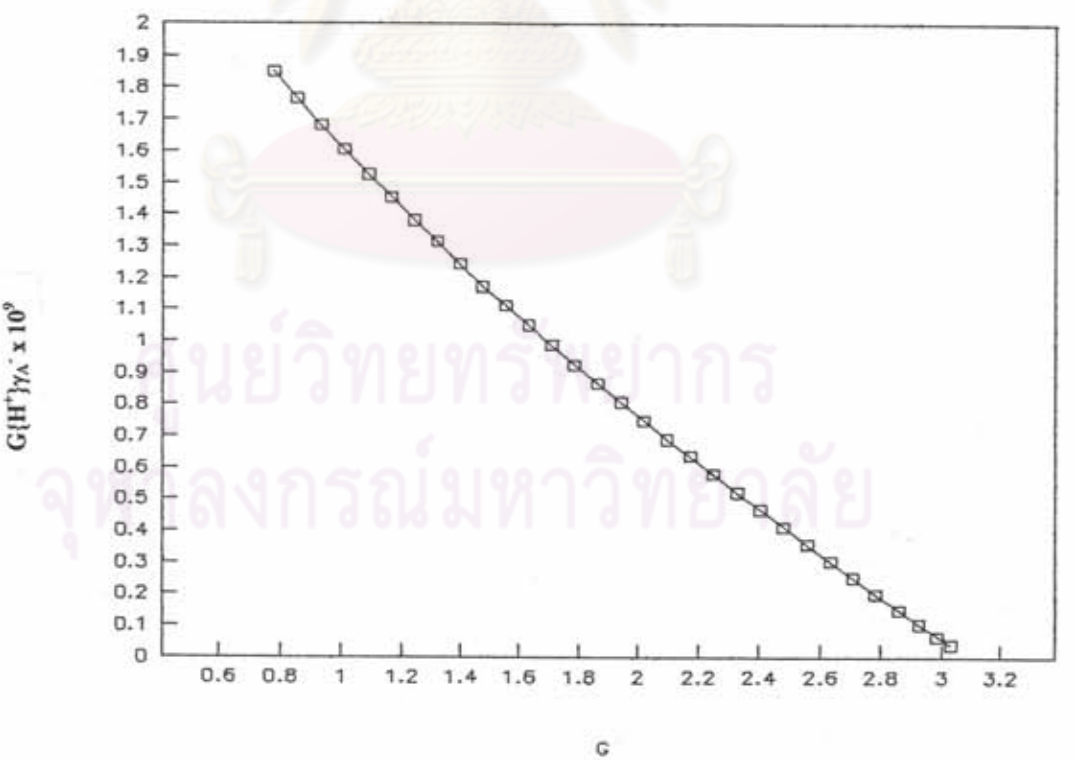

Fig. 48 : G plot for the titration of boric acid (equivalent volume = 30 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

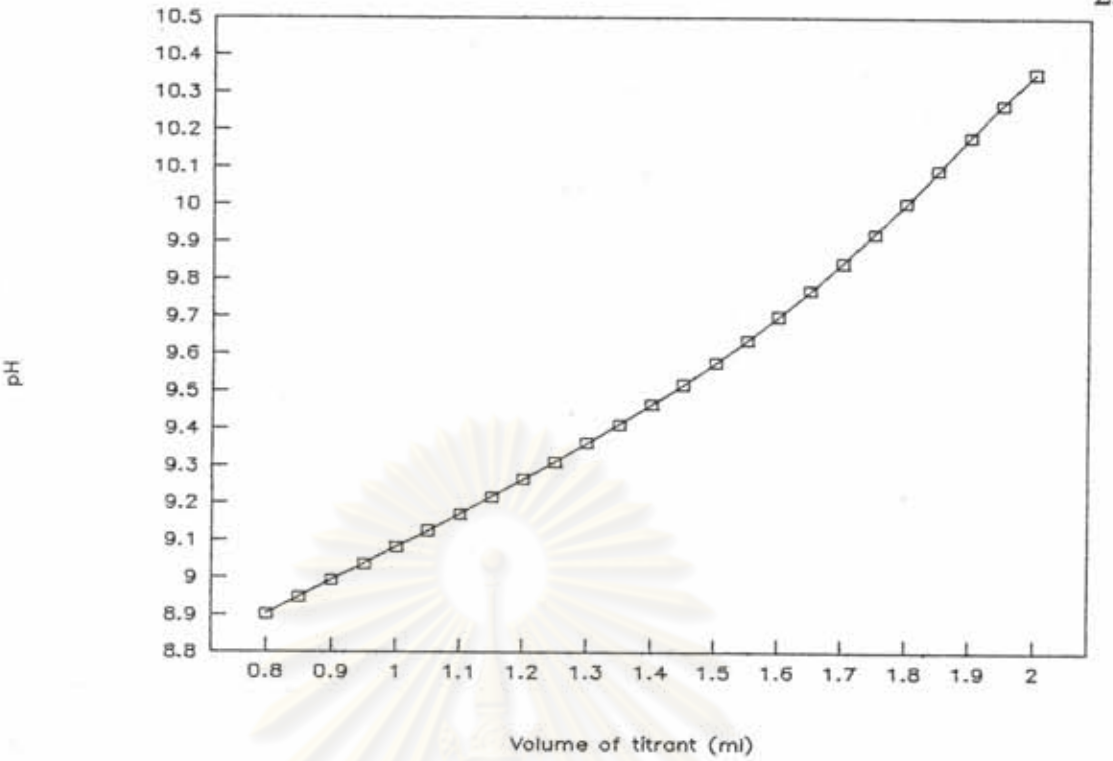

Fig. 49 : Titration curve of procaine hydrochloride (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

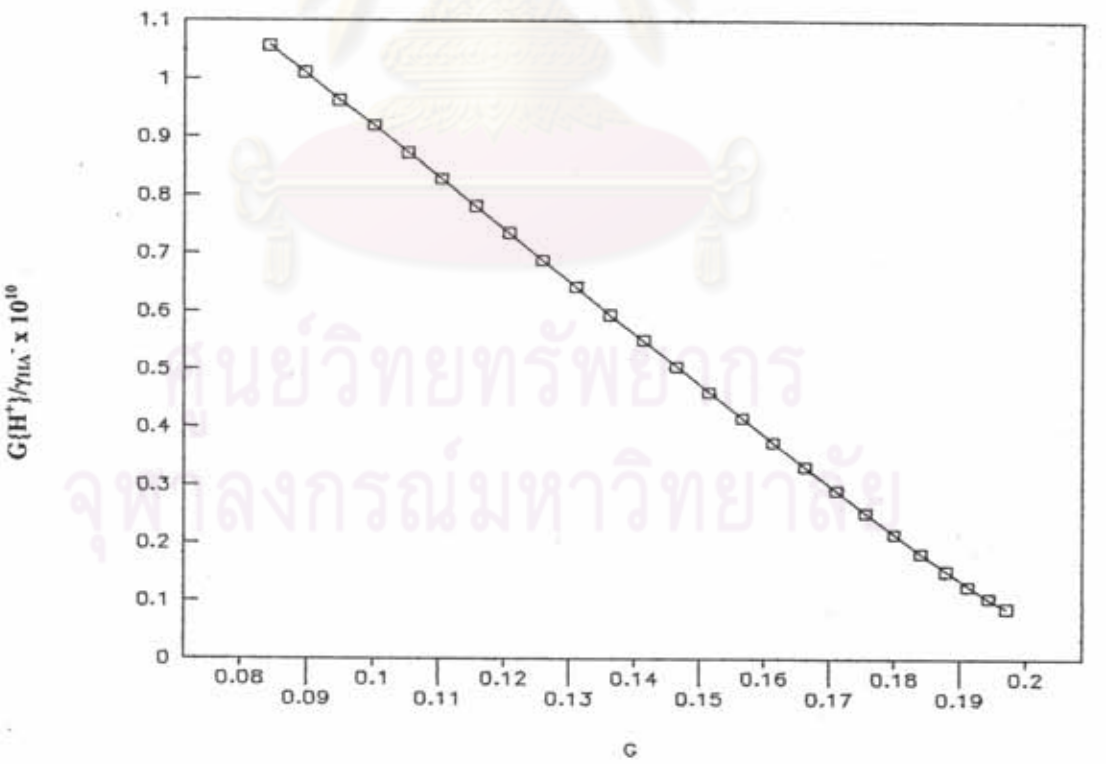

Fig. 50 : G plot for the titration of procaine hydrochloride (equivalent volume = 2 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

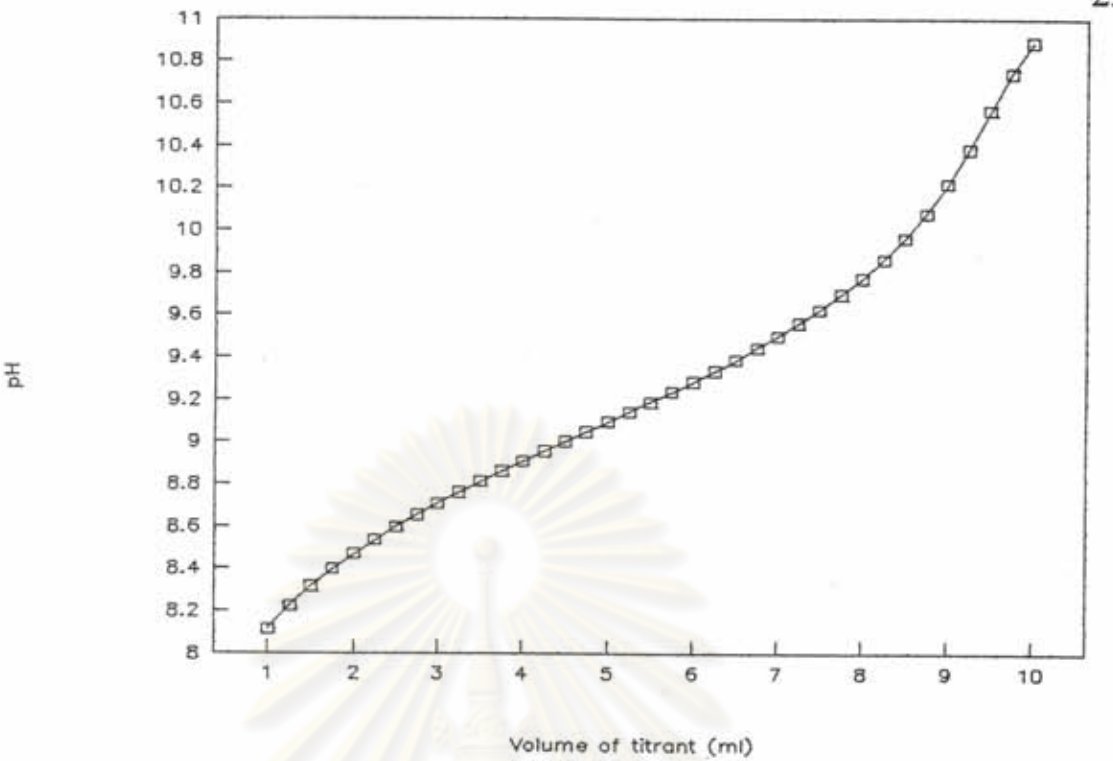

Fig. 51 : Titration curve of procaine hydrochloride (equivalent volume = 10 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

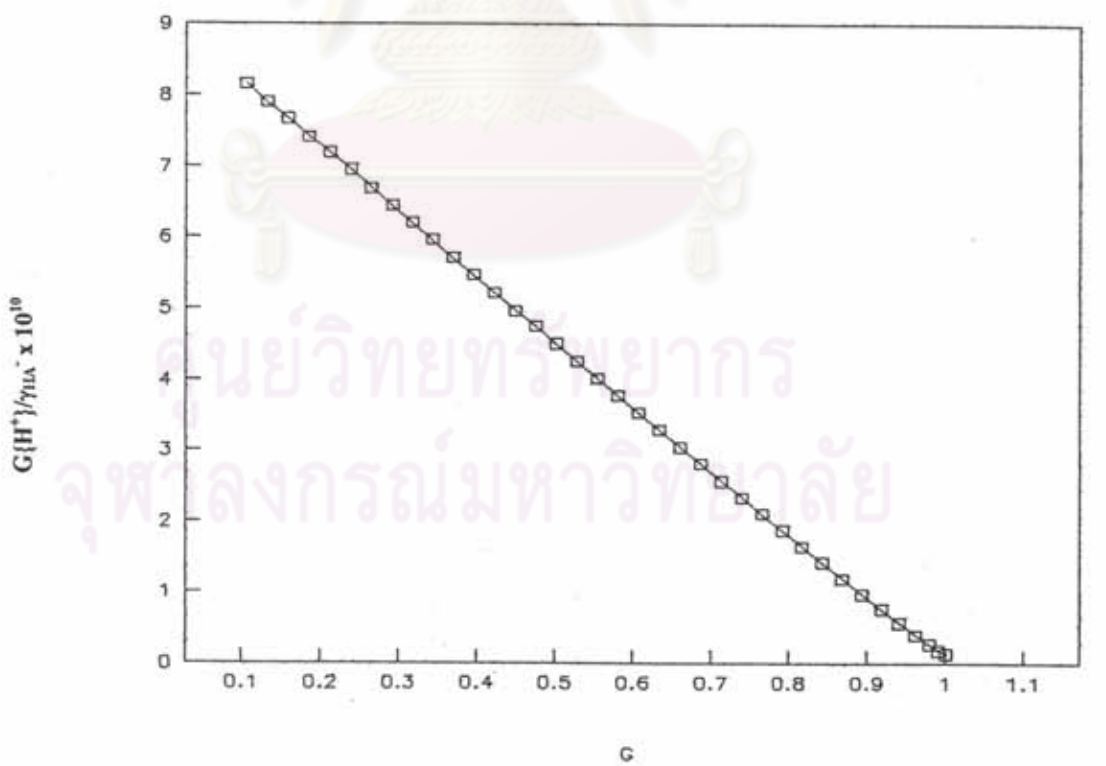

Fig. 52 : G plot for the titration of procaine hydrochloride (equivalent volume =10 ml) in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.

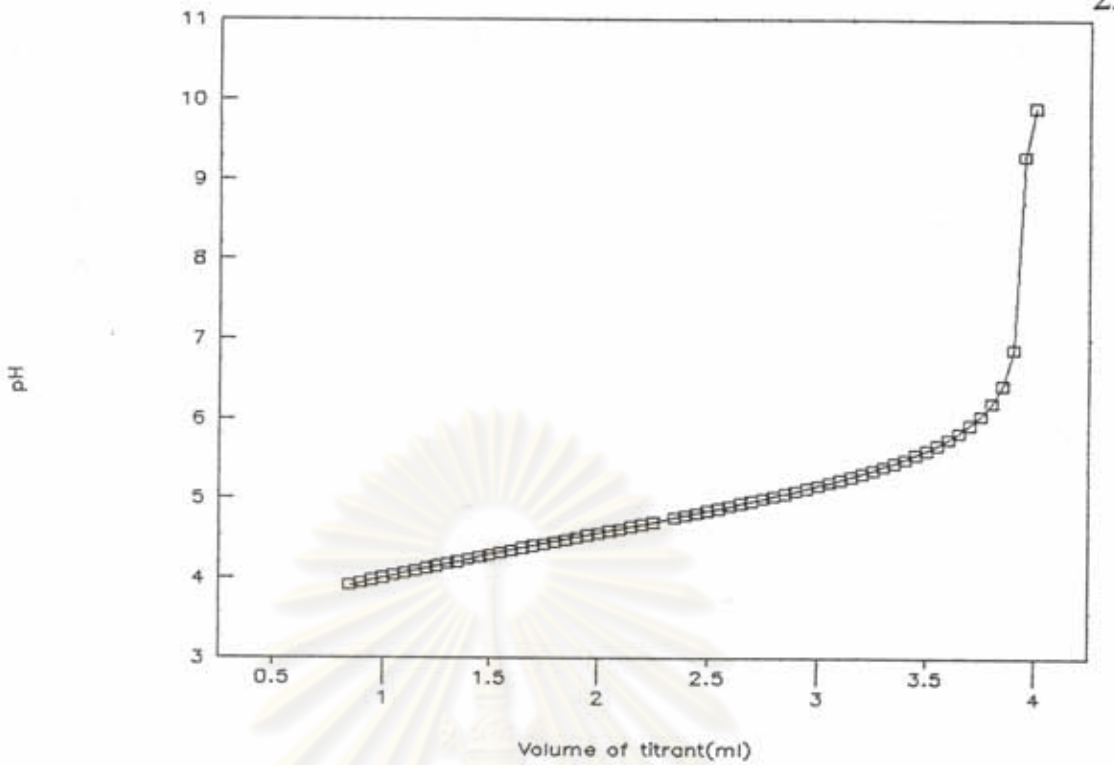

Fig. 53 : Titration curve of the mixture of benzoic acid and pivalic acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 1.

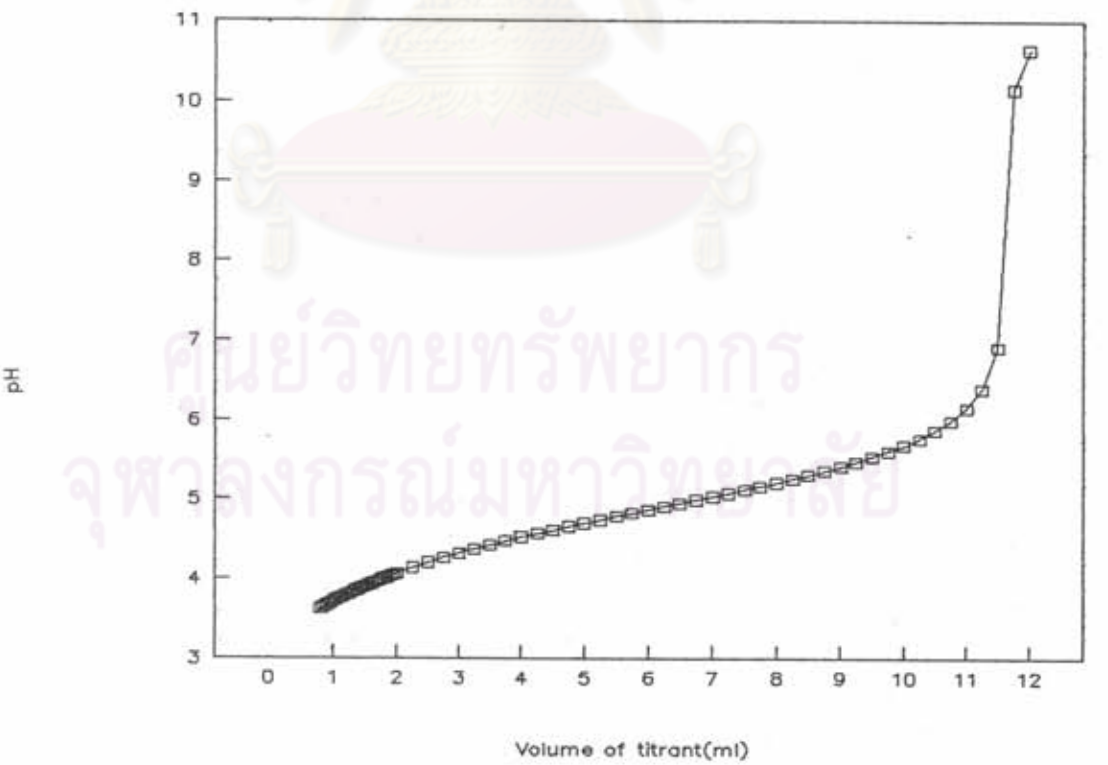

Fig. 54 : Titration curve of the mixture of benzoic acid and pivalic acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 5.

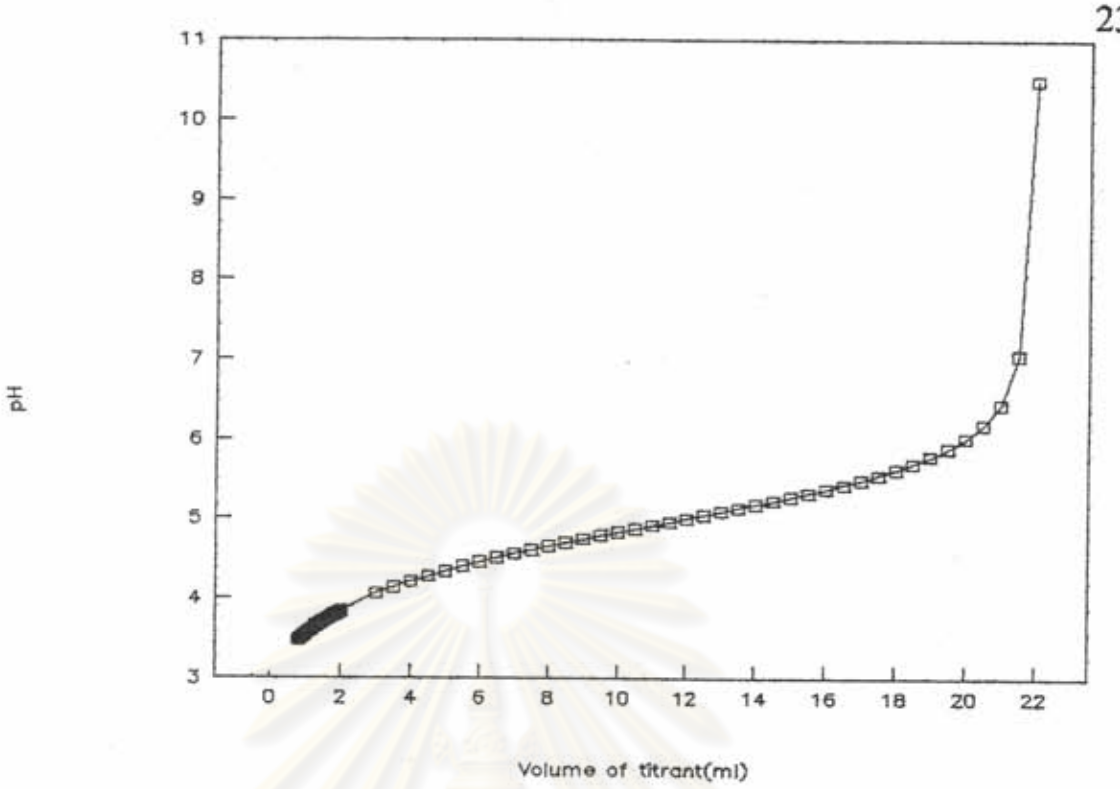

Fig. 55 : Titration curve of the mixture of benzoic acid and pivalic acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 10.

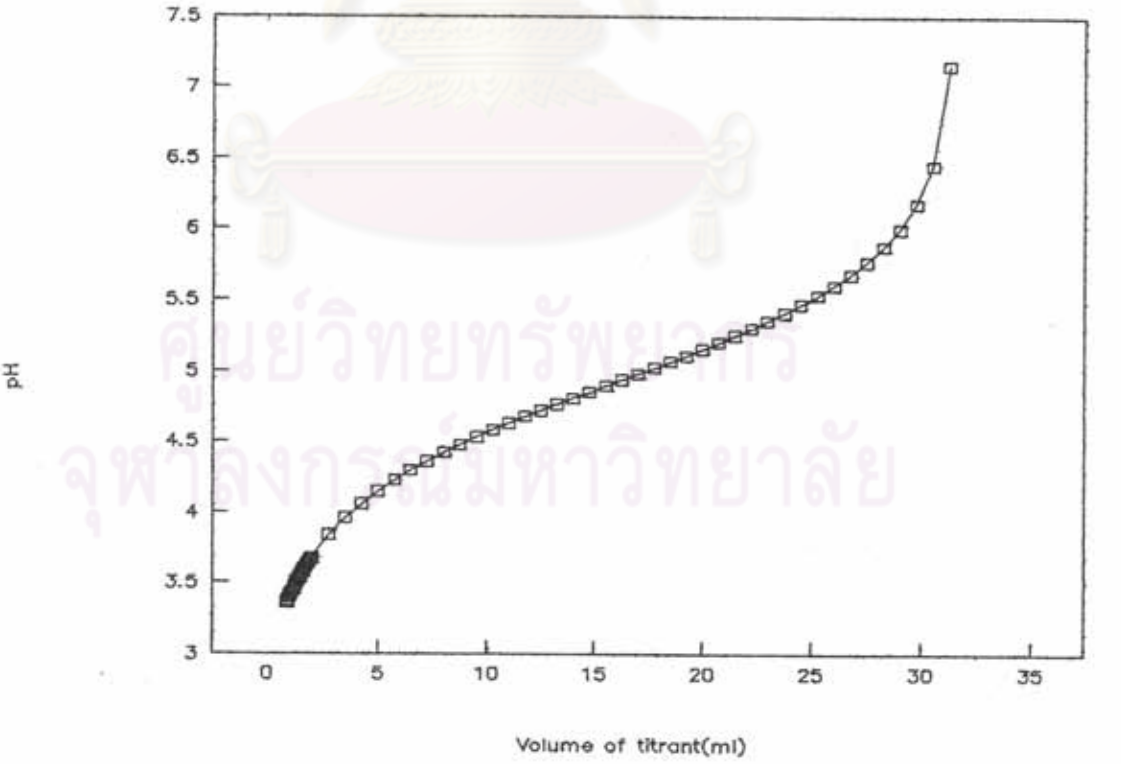

Fig. 56 : Titration curve of the mixture of benzoic acid and pivalic acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 15.

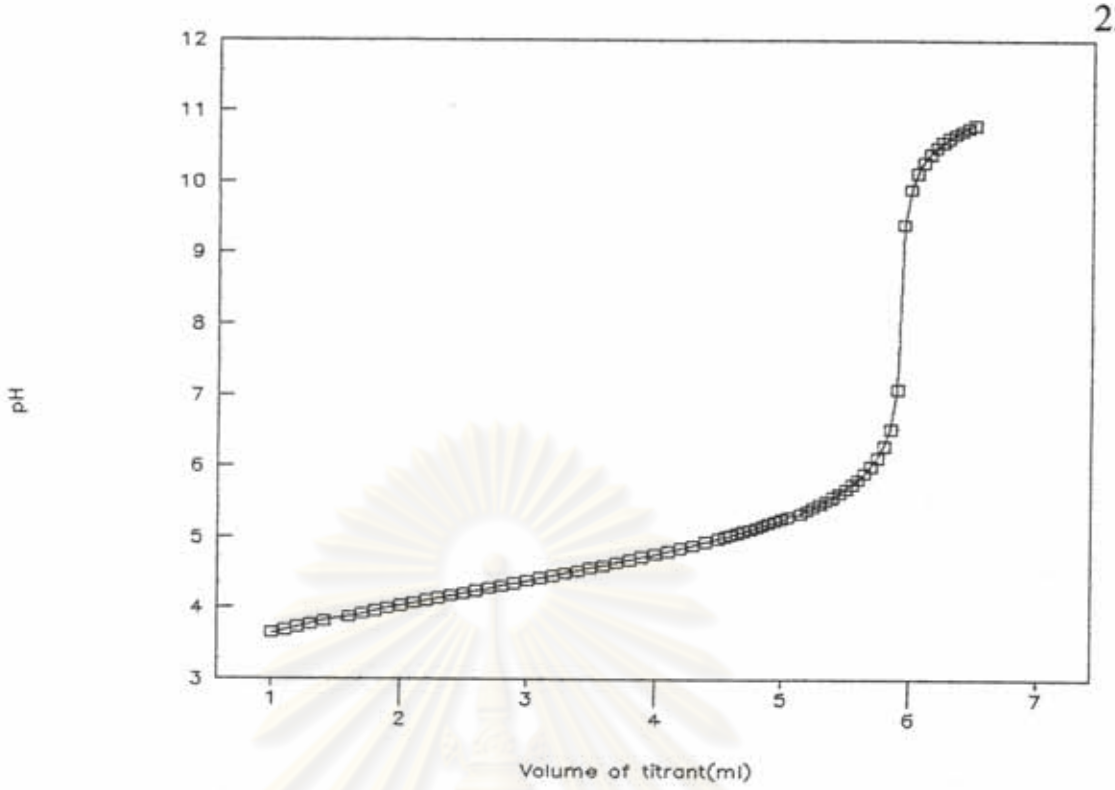

Fig. 57 : Titration curve of the mixture of benzoic acid and pivalic acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.5.

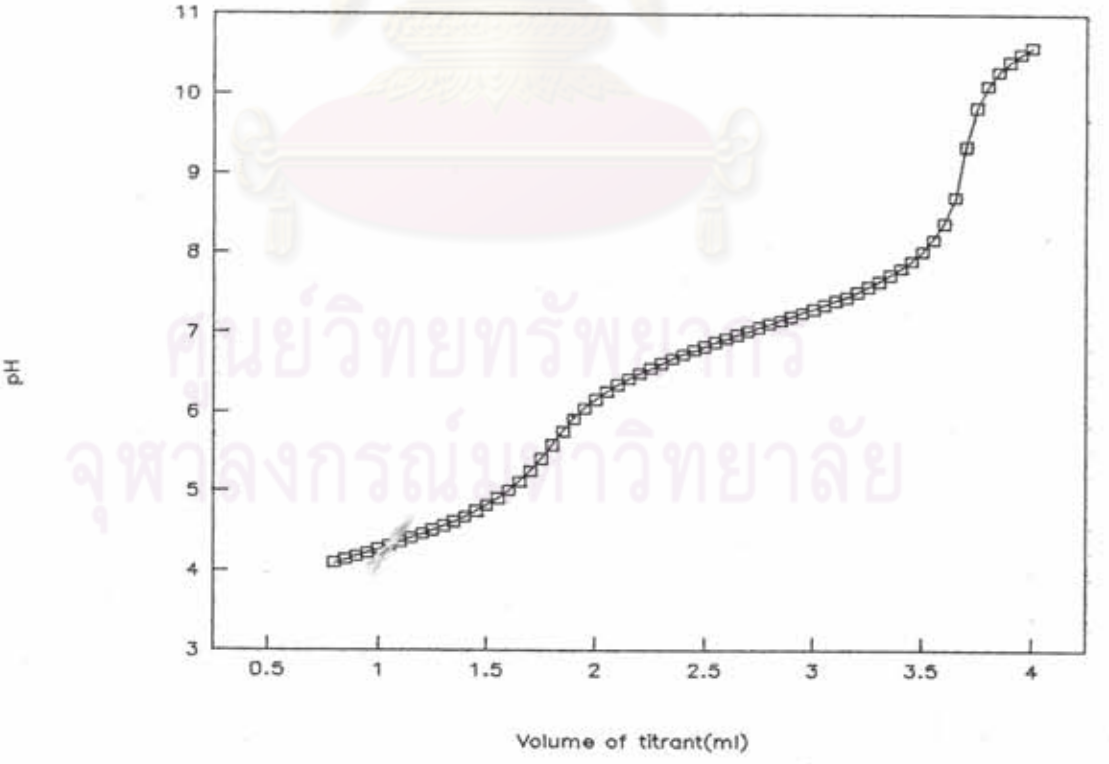

Fig. 58 : Titration curve of the mixture of benzoic acid and p-nitrophenol in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 1.

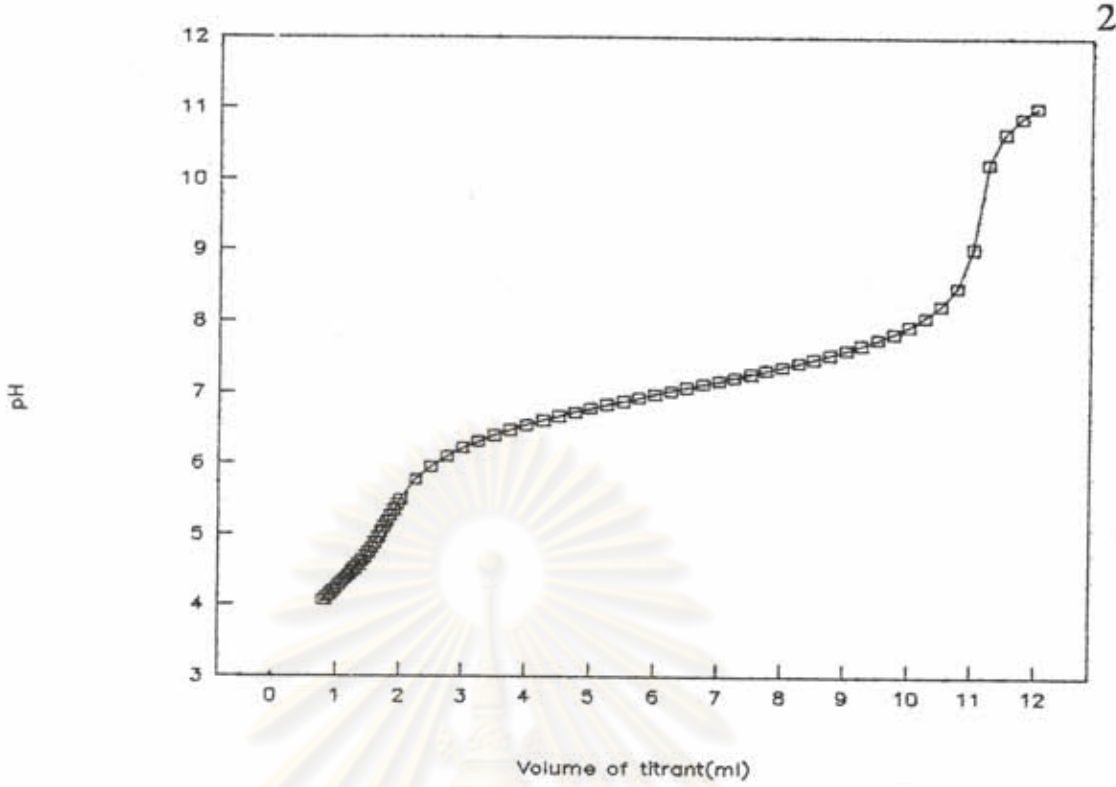

Fig. 59: Titration curve of the mixture of benzoic acid and p-nitrophenol in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 5.

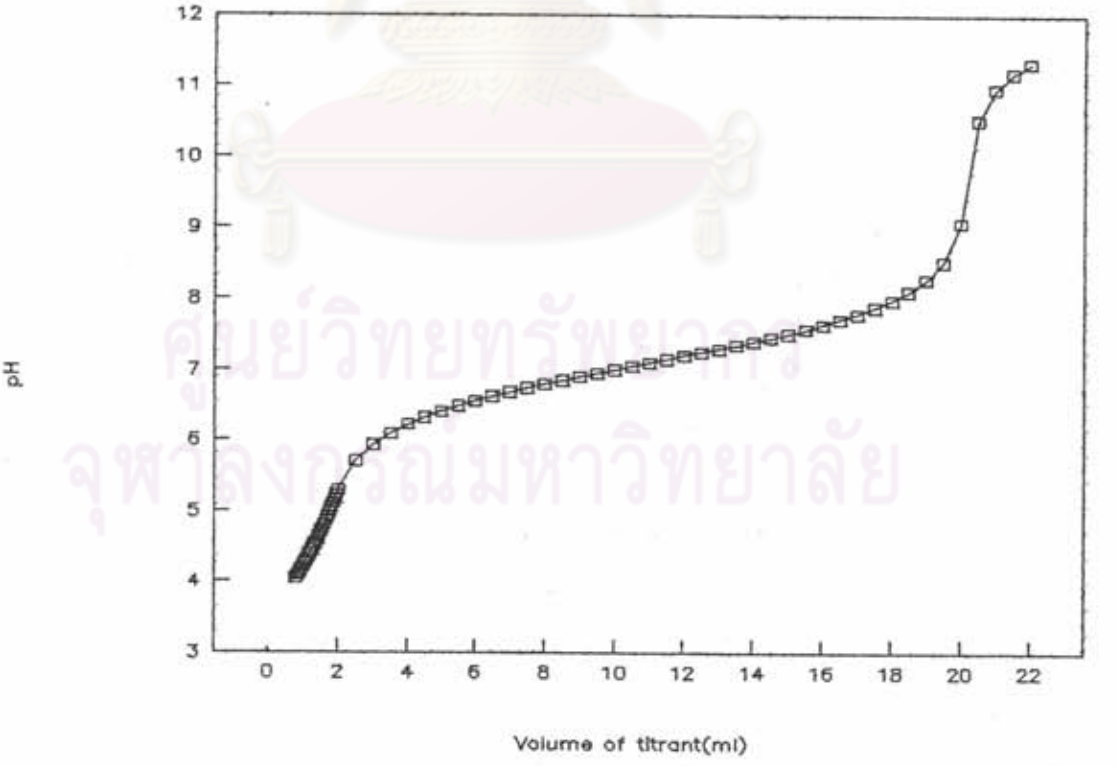

Fig. 60 : Titration curve of the mixture of benzoic acid and p-nitrophenol in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 10.

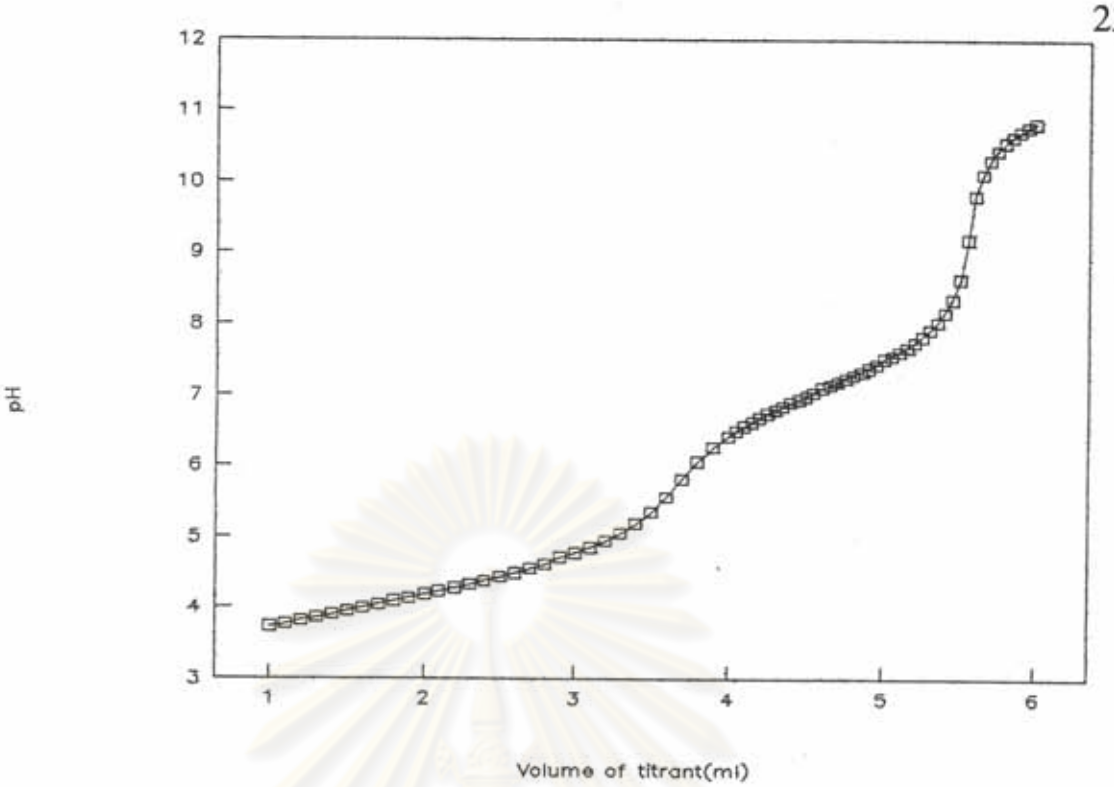

Fig. 61 : Titration curve of the mixture of benzoic acid and p-nitrophenol in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.5.

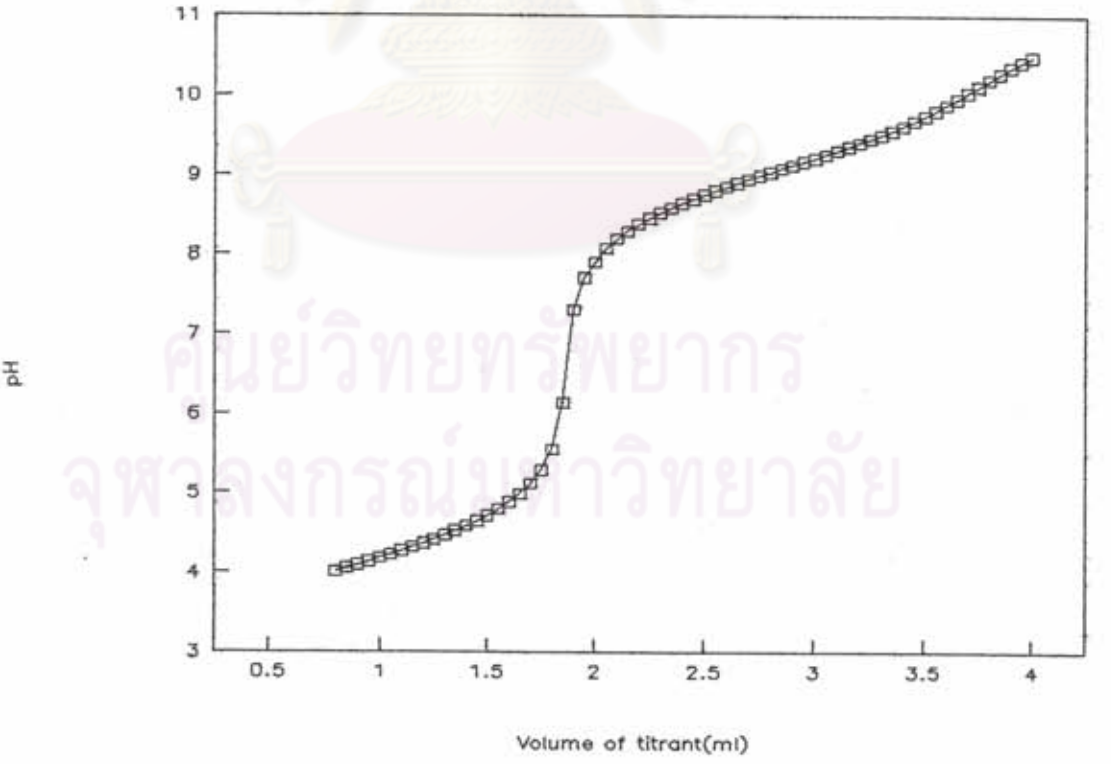

Fig. 62 : Titration curve of the mixture of benzoic acid and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 1.

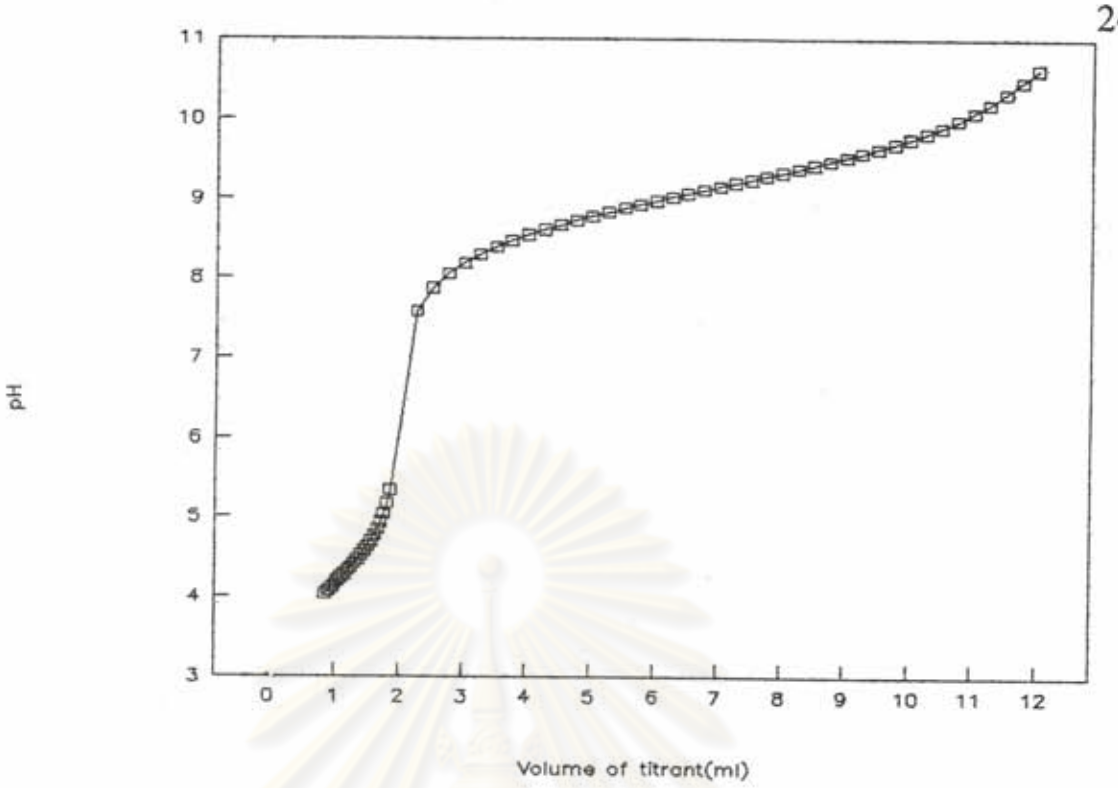

Fig. 63 : Titration curve of the mixture of benzoic acid and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 5.

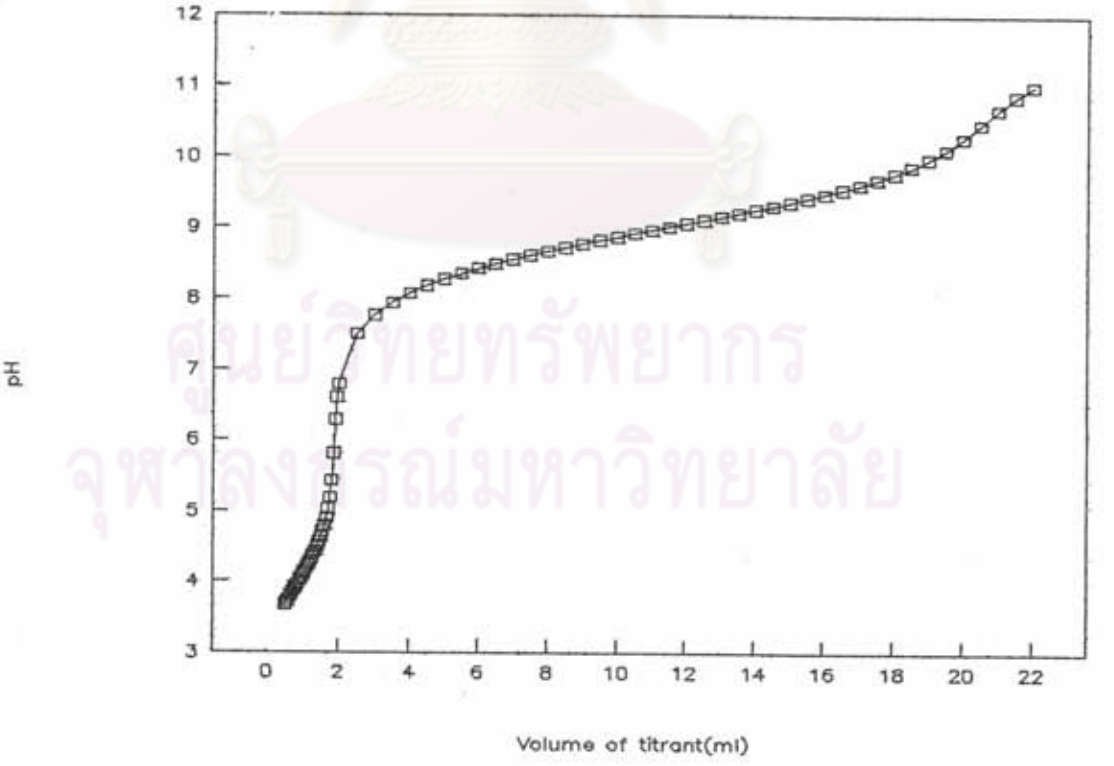

Fig. 64 : Titration curve of the mixture of benzoic acid and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 10.

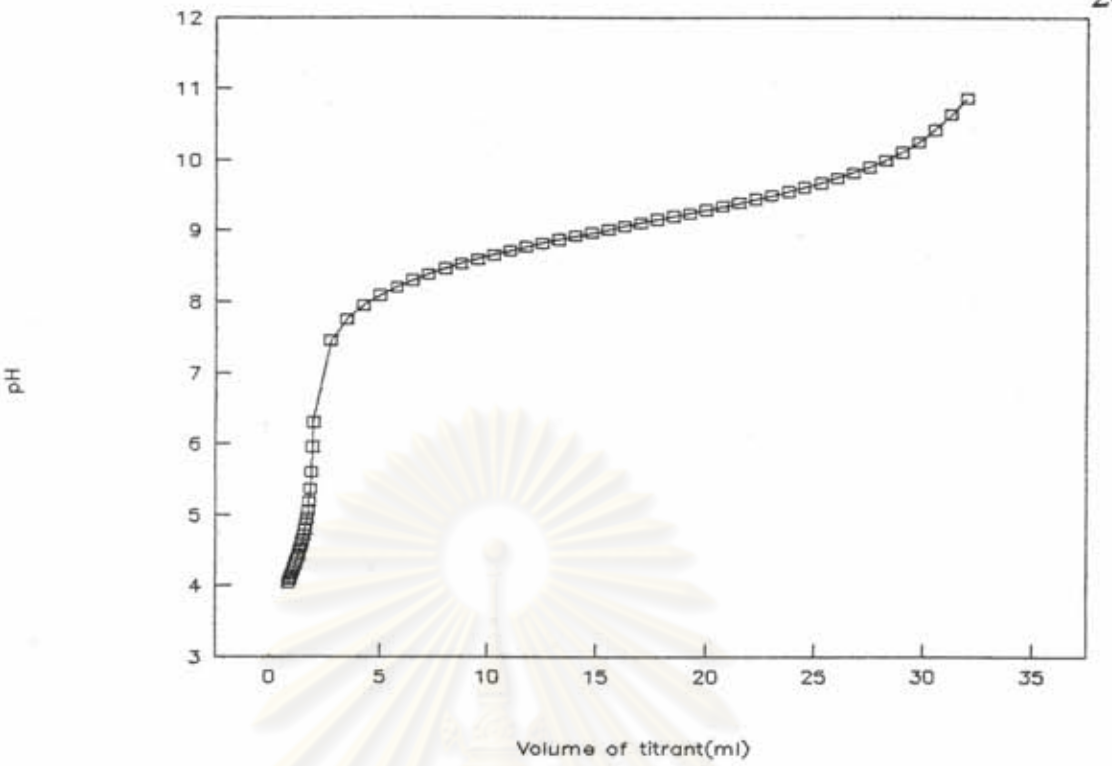

Fig. 65 : Titration curve of the mixture of benzoic acid and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 15.

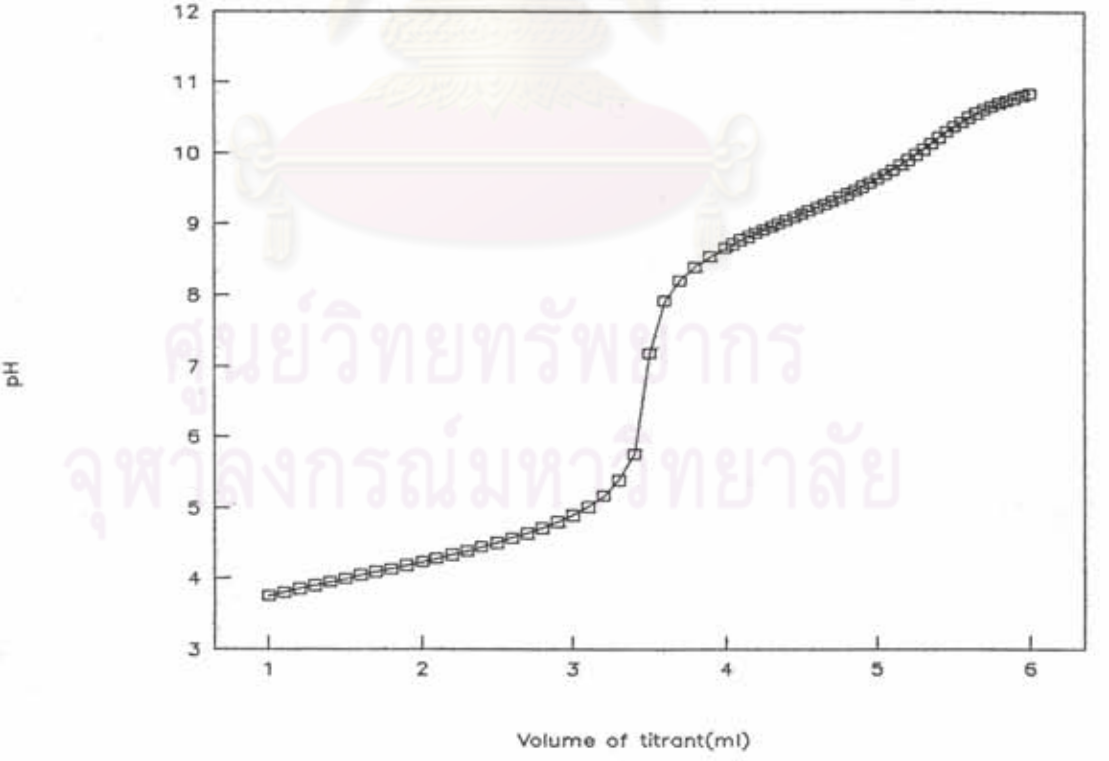

Fig. 66 : Titration curve of the mixture of benzoic acid and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.5.

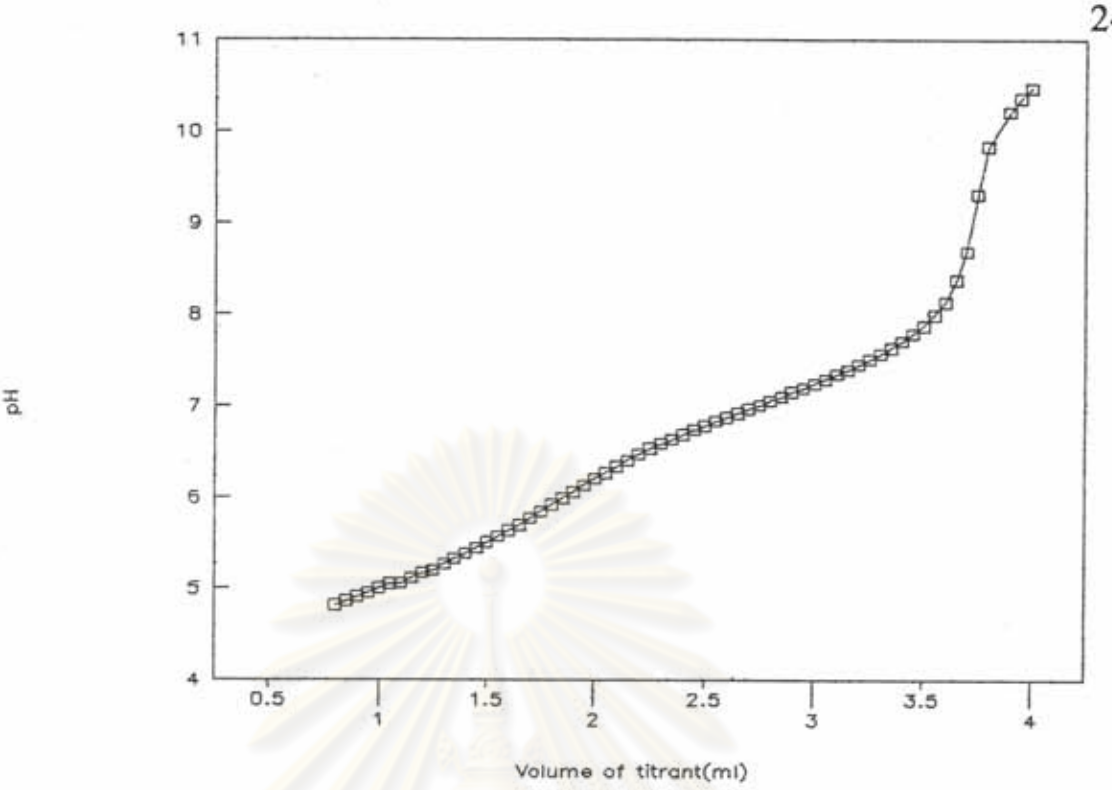

Fig. 67 : Titration curve of the mixture of pivalic acid and p-nitrophenol in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 1.

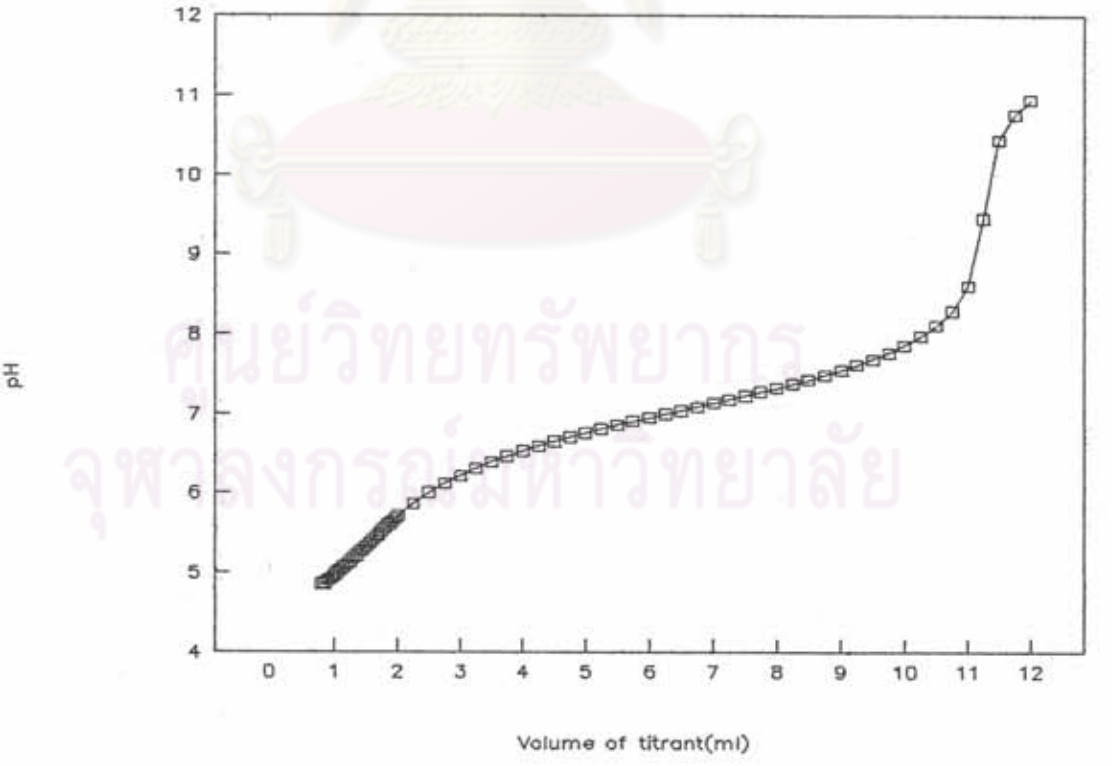

Fig. 68 : Titration curve of the mixture of pivalic acid and p-nitrophenol in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 5.

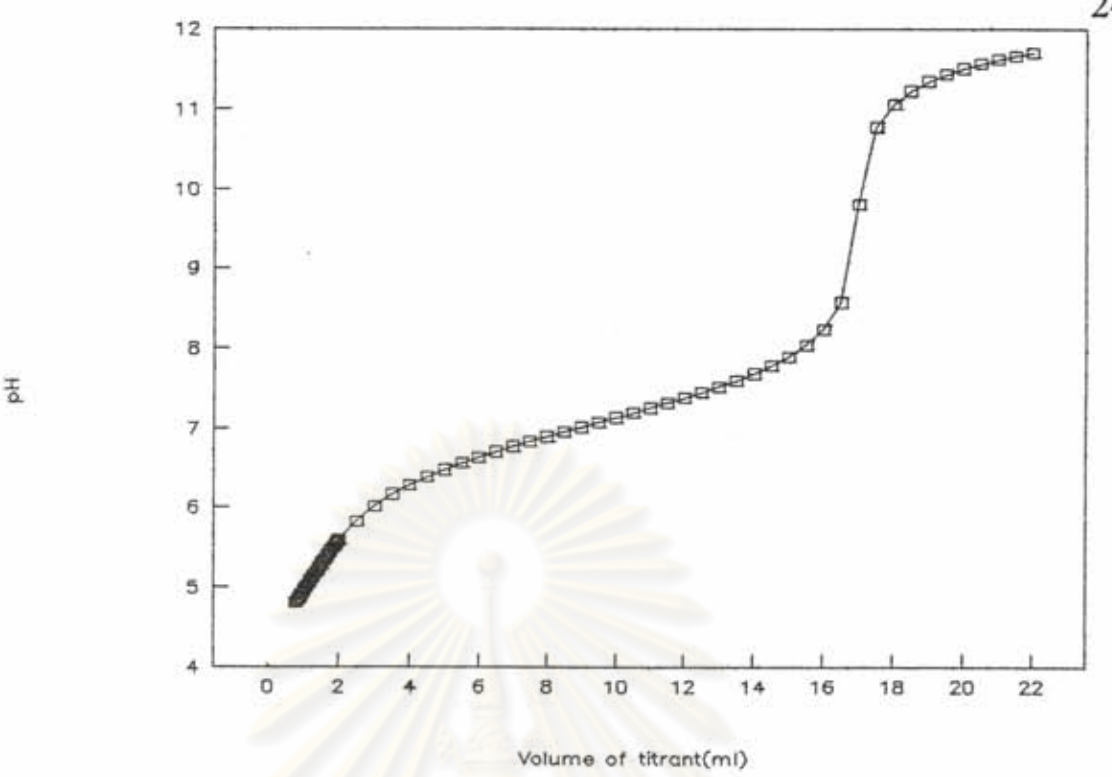

Fig. 69 : Titration curve of the mixture of pivalic acid and p-nitrophenol in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 10.

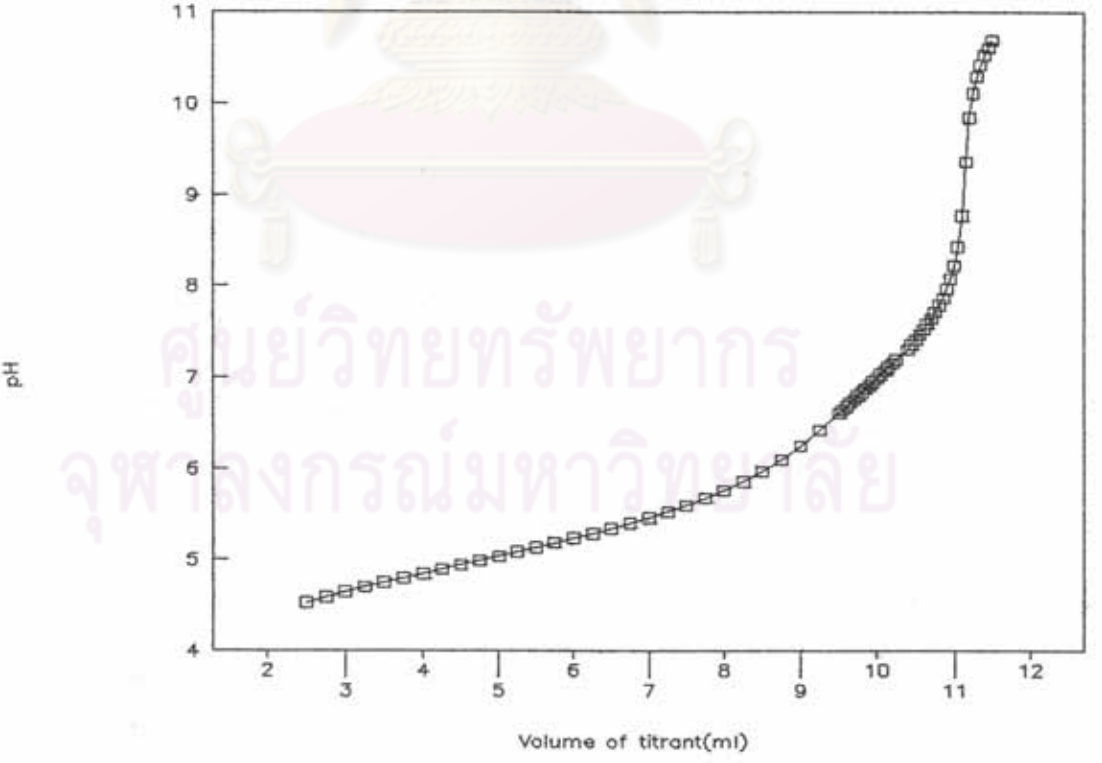

Fig. 70 : Titration curve of the mixture of pivalic acid and p-nitrophenol in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.2.

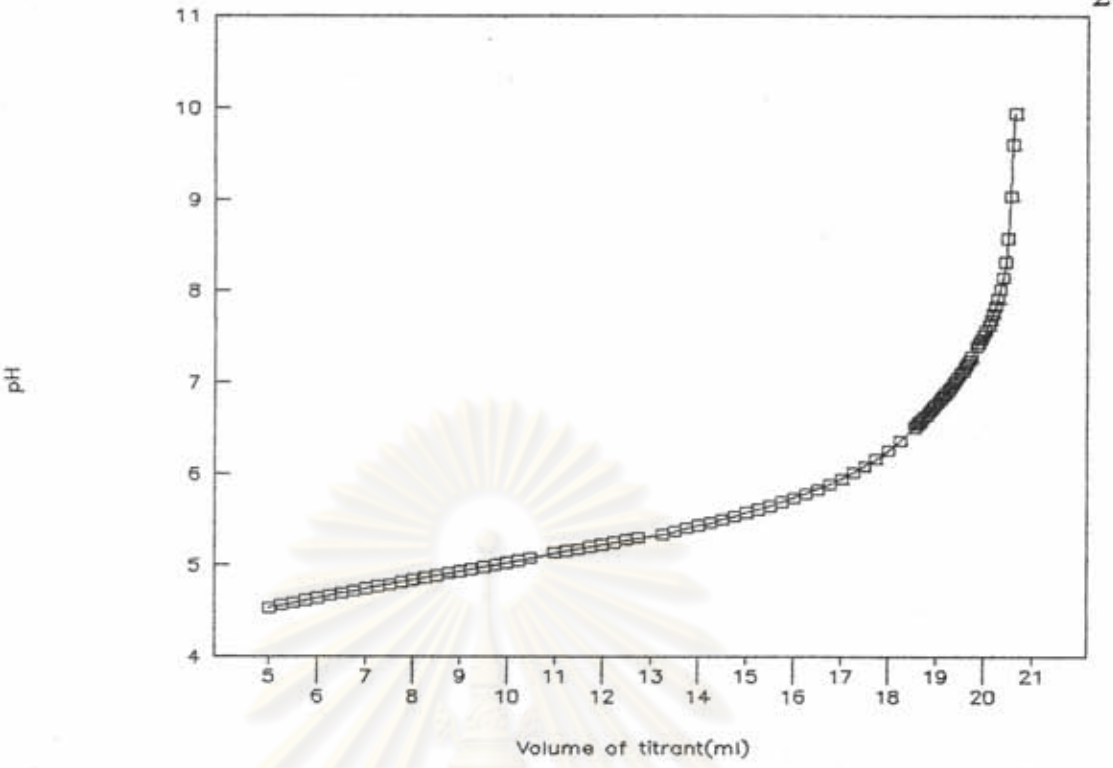

Fig. 71 : Titration curve of the mixture of pivalic acid and p-nitrophenol in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.1.

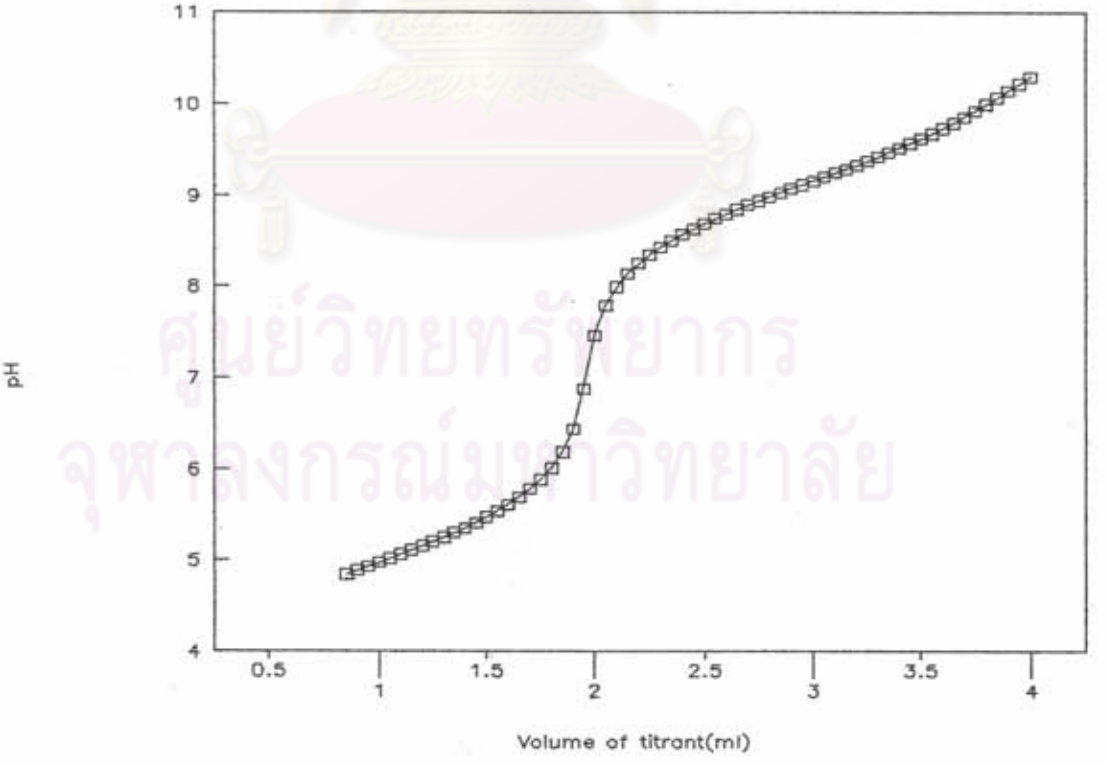

Fig. 72 : Titration curve of the mixture of pivalic acid and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 1.

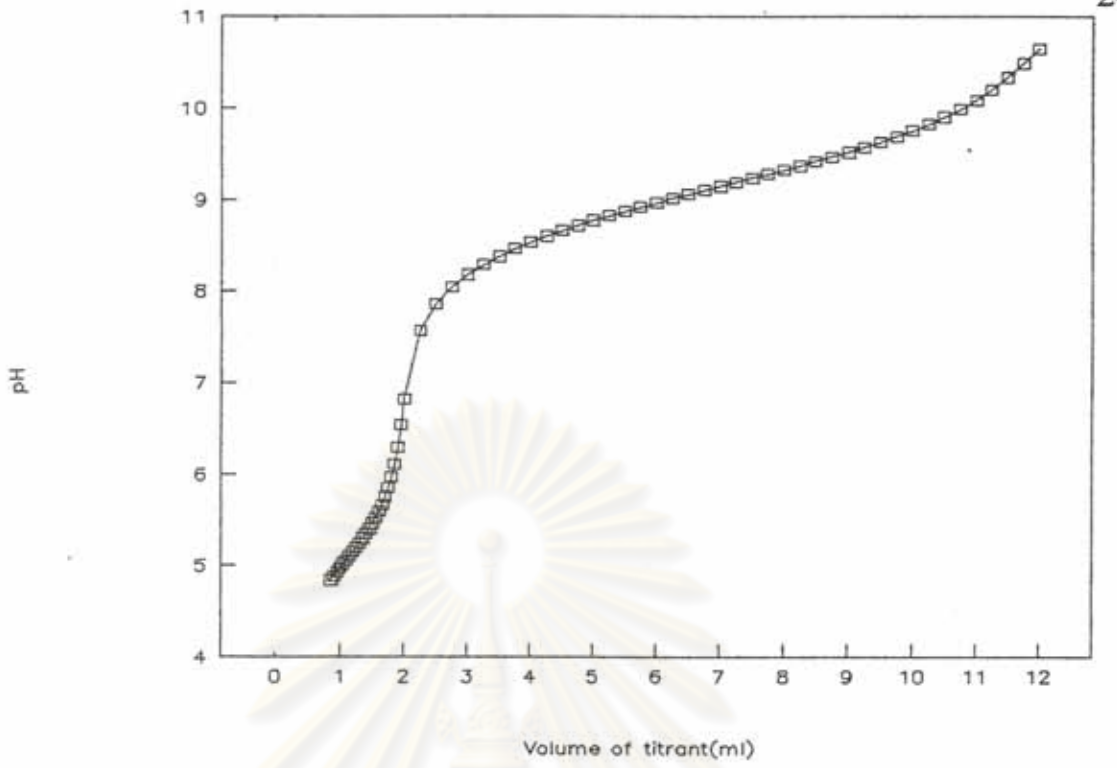

Fig. 73 : Titration curve of the mixture of pivalic acid boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 5.

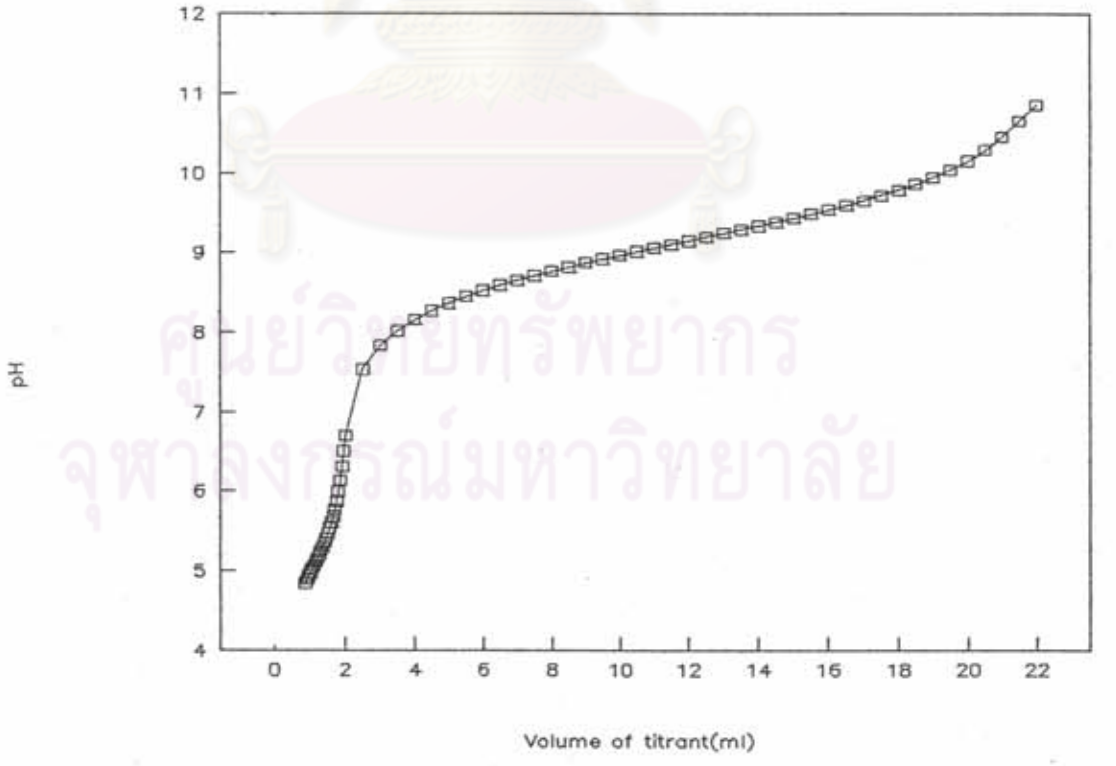

Fig. 74 : Titration curve of the mixture of pivalic acid and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 10.

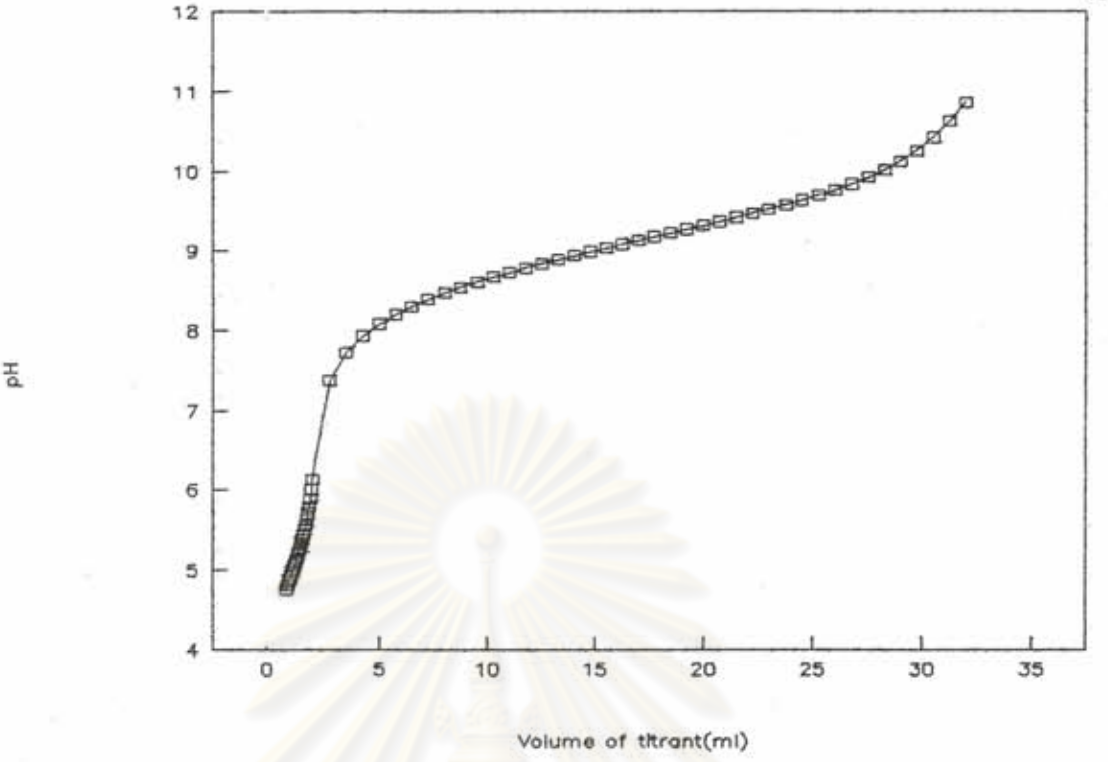

Fig. 75 : Titration curve of the mixture of pivalic acid and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 15.

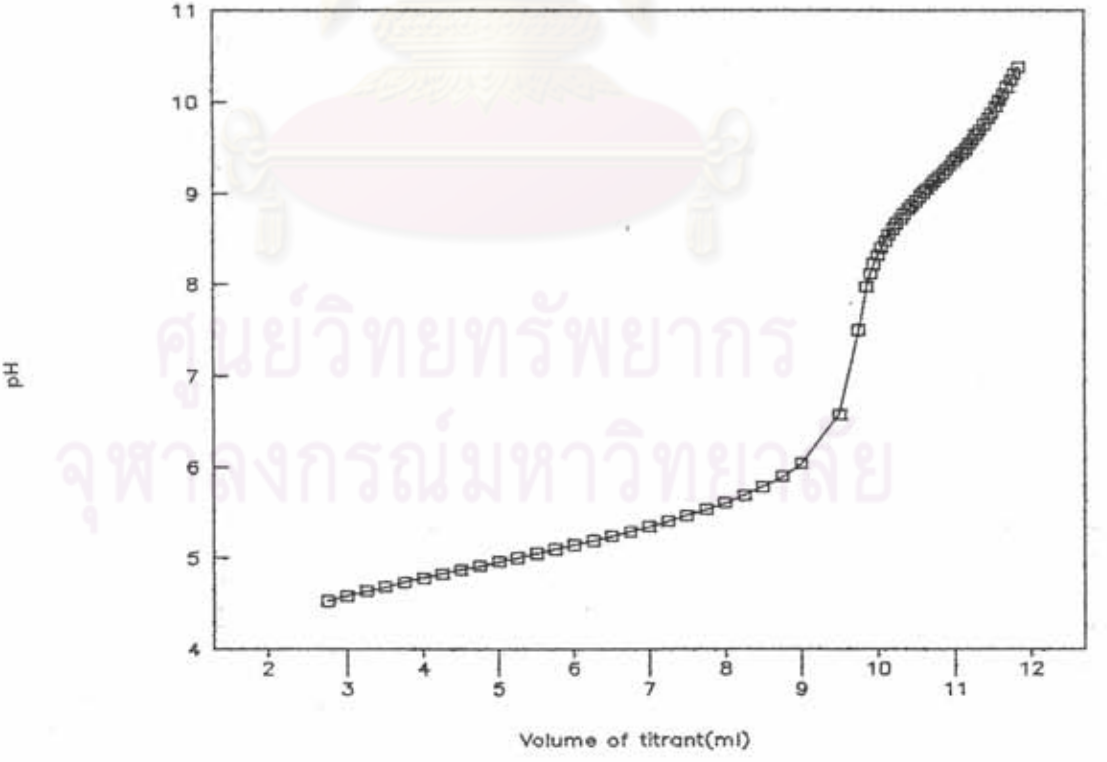

Fig. 76 : Titration curve of the mixture of pivalic acid and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.2.

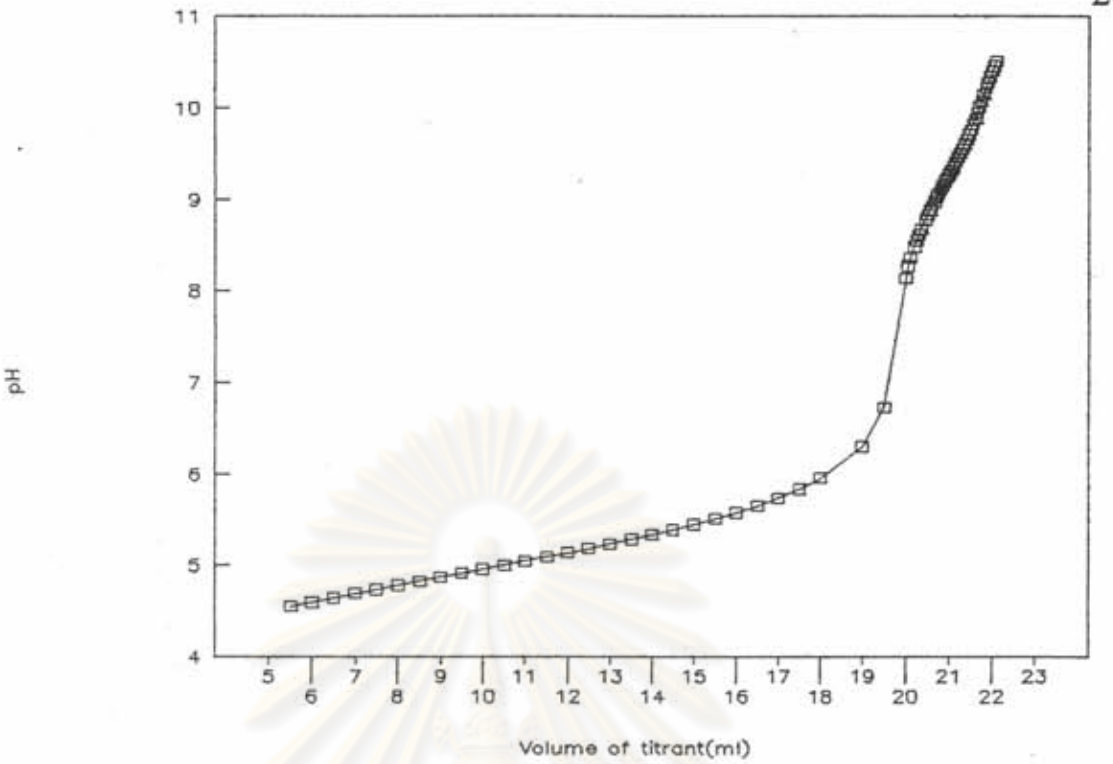

Fig. 77 : Titration curve of the mixture of pivalic acid and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.1.

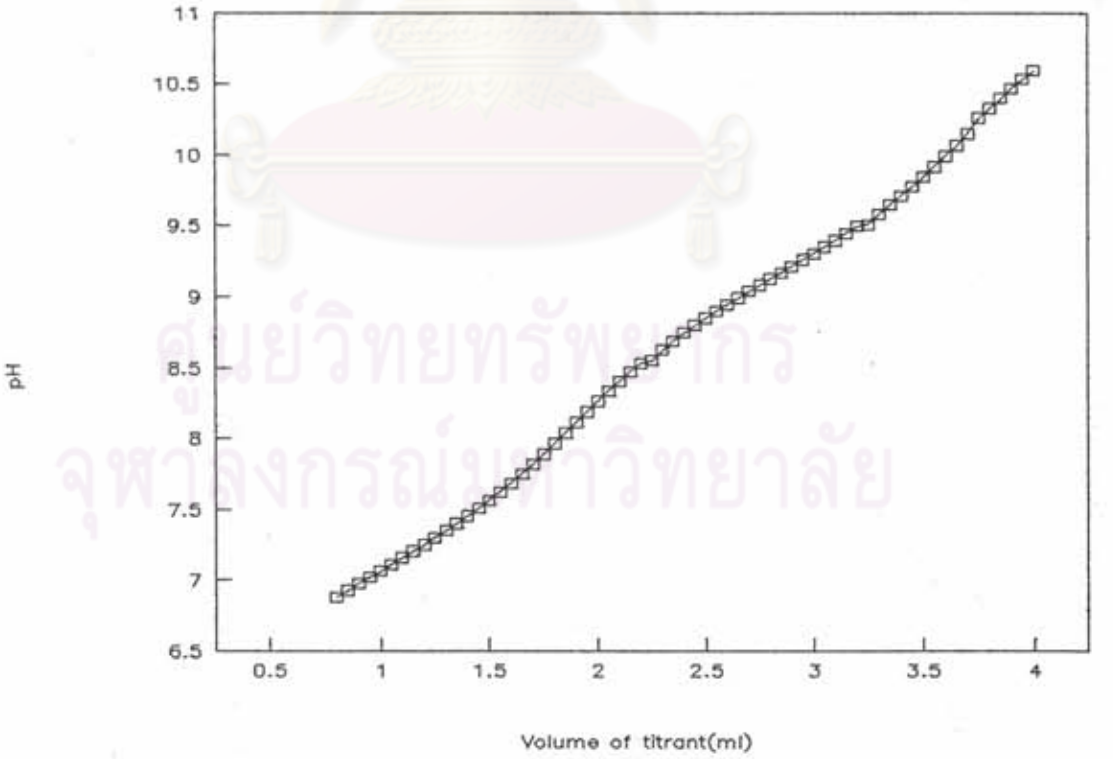

Fig. 78 : Titration curve of the mixture of p-nitrophenol and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 1.

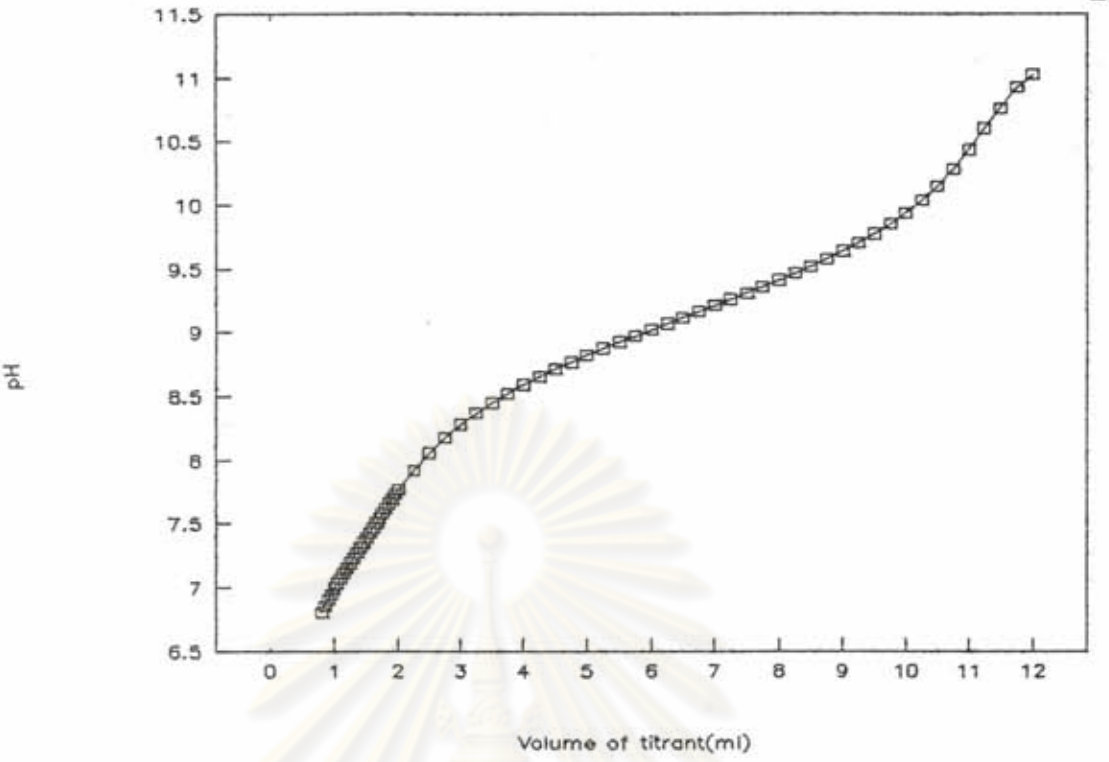

Fig. 79 : Titration curve of the mixture of p-nitrophenol and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 5.

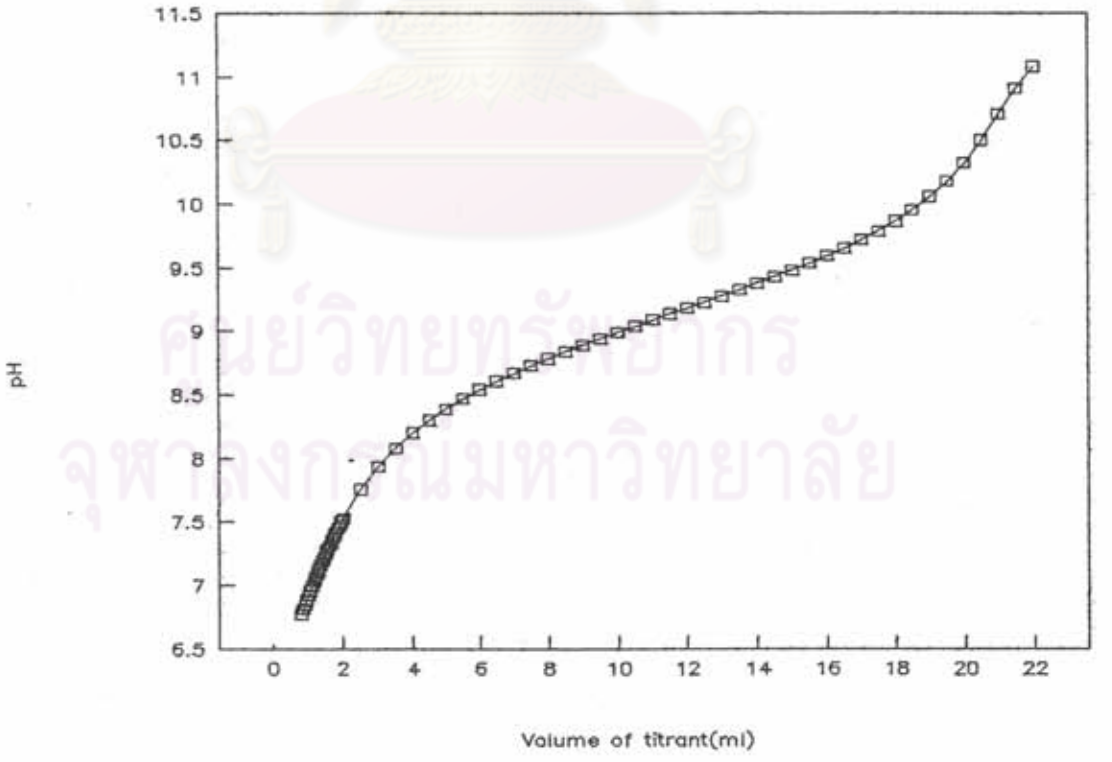

Fig. 80 : Titration curve of the mixture of p-nitrophenol and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 10.

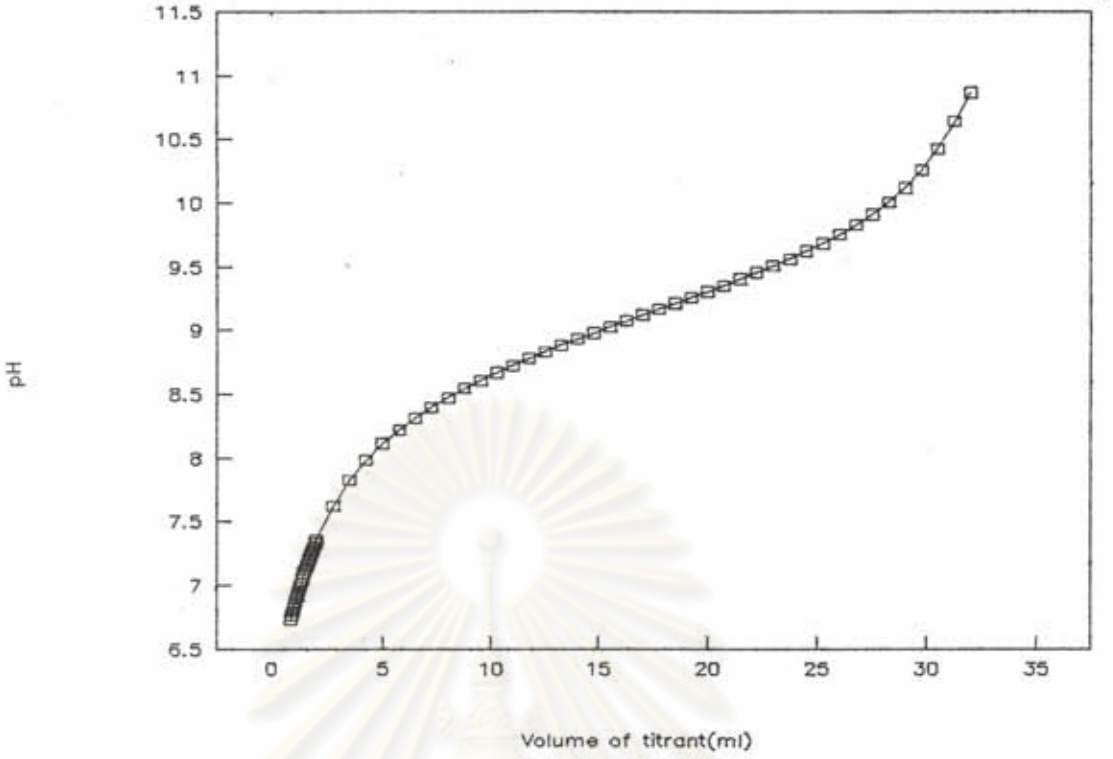

Fig. 81 : Titration curve of the mixture of p-nitrophenol and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 15.

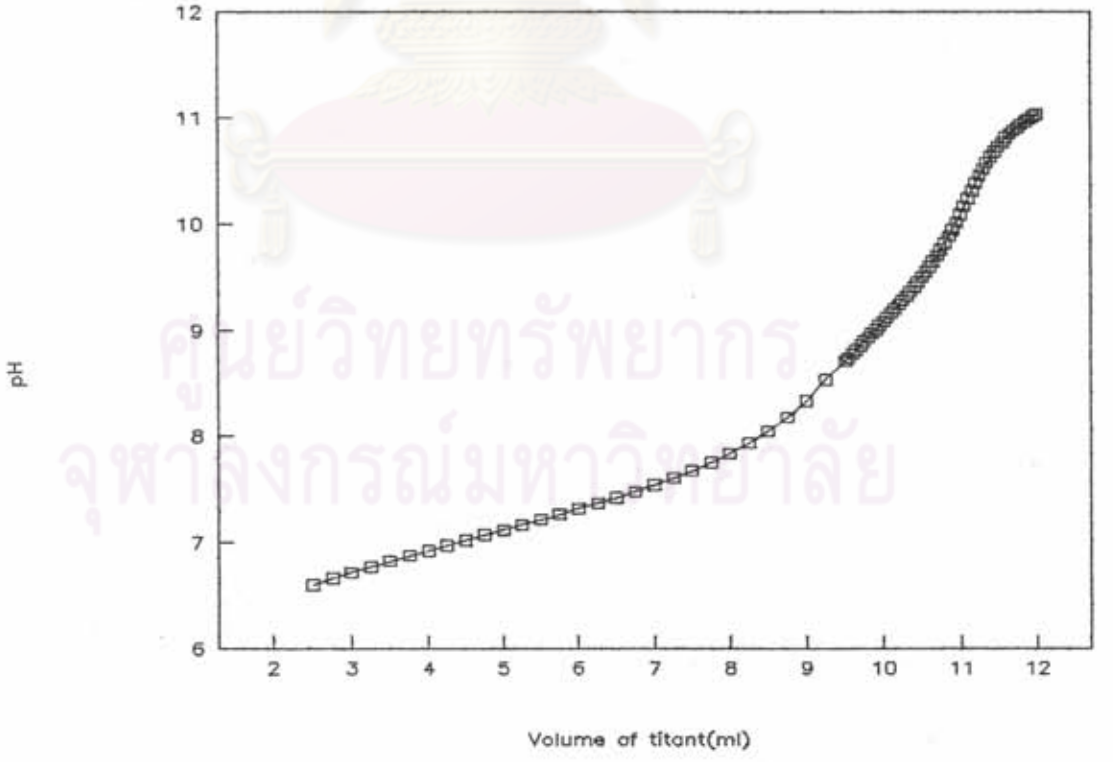

Fig. 82 : Titration curve of the mixture of p-nitrophenol and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.2.

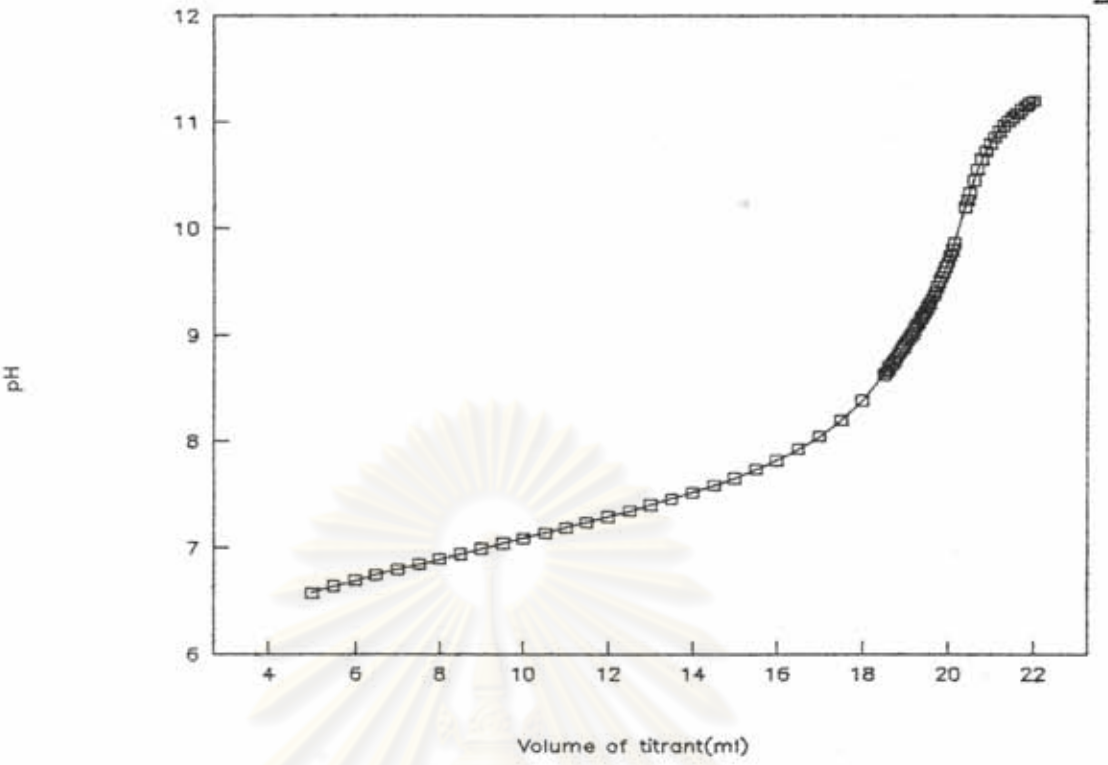

Fig. 83 : Titration curve of the mixture of p-nitrophenol and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.1.

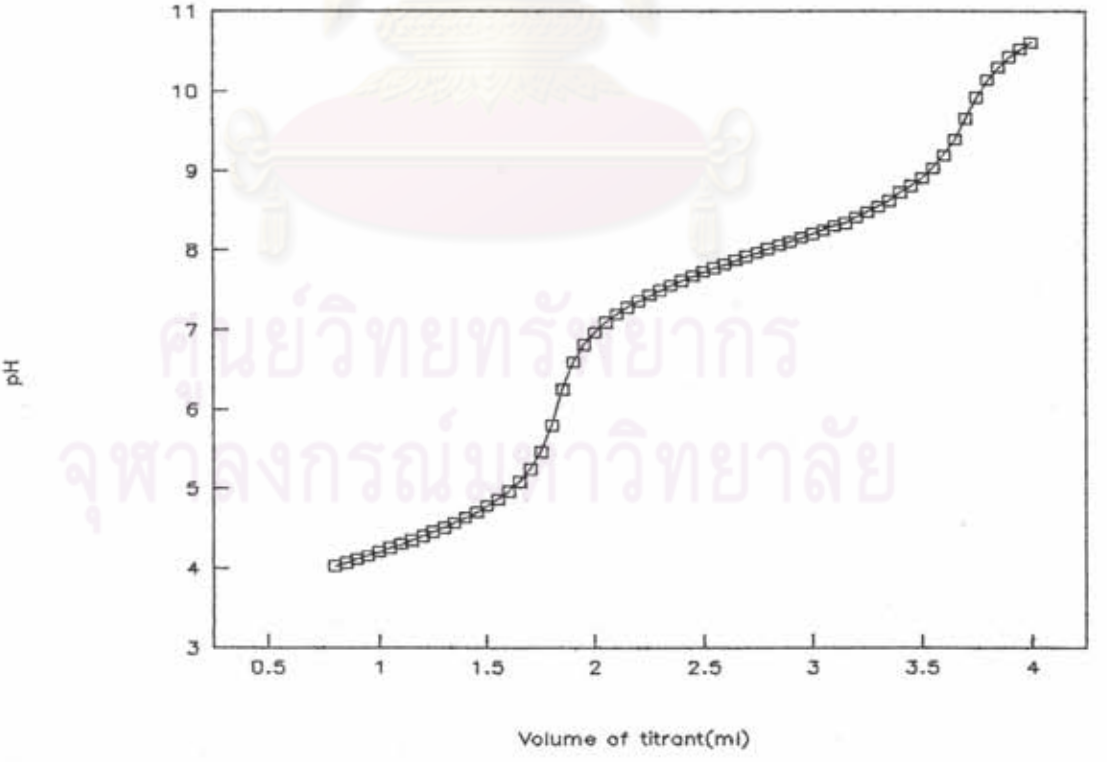

Fig. 84 : Titration curve of the mixture of benzoic acid and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 1.

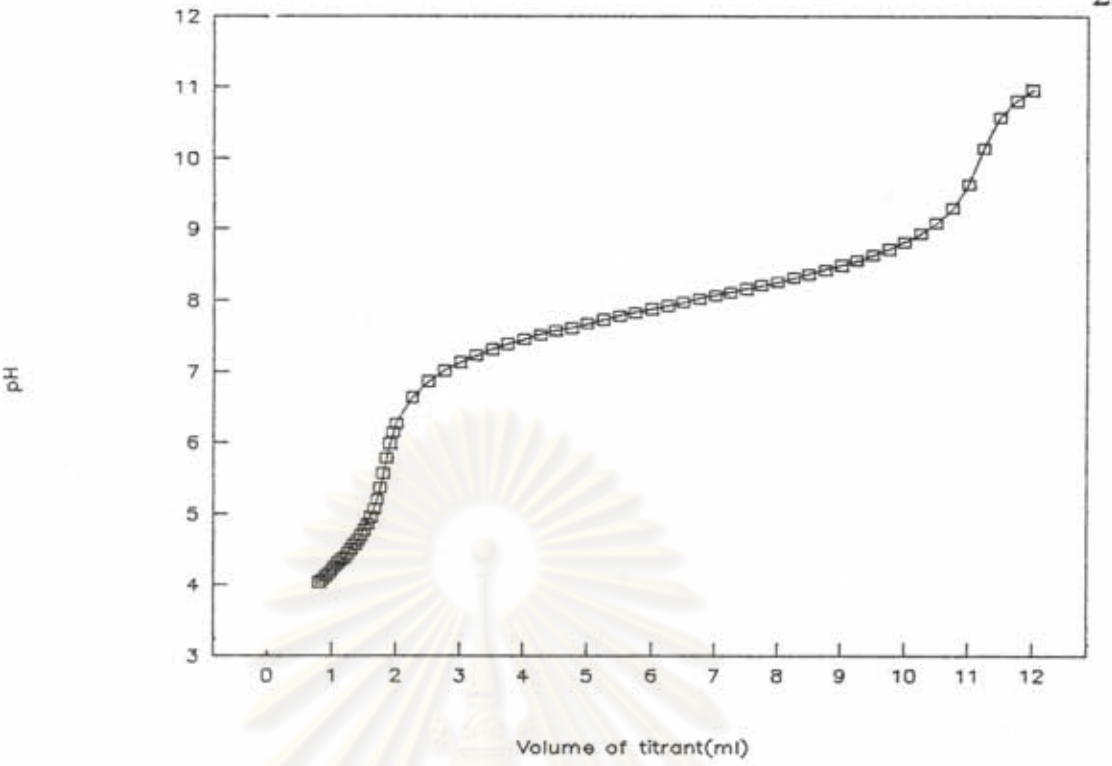

Fig. 85 : Titration curve of the mixture of benzoic acid and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 5.

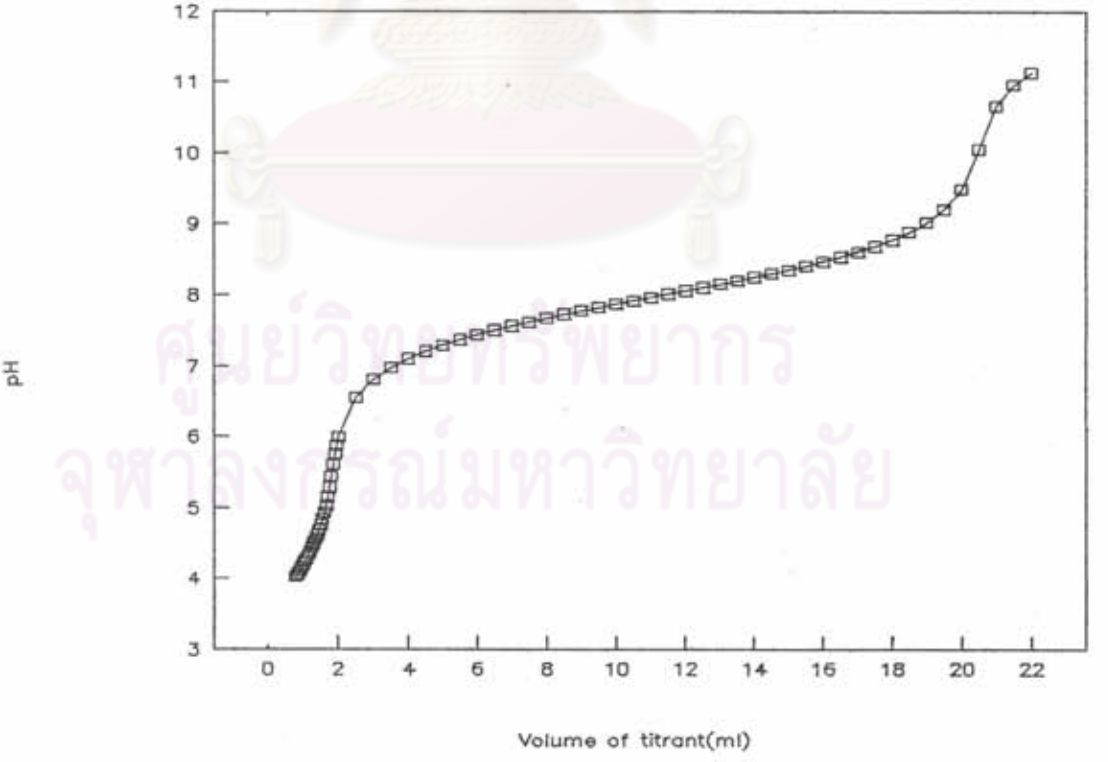

Fig. 86 : Titration curve of the mixture of benzoic acid and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 10.

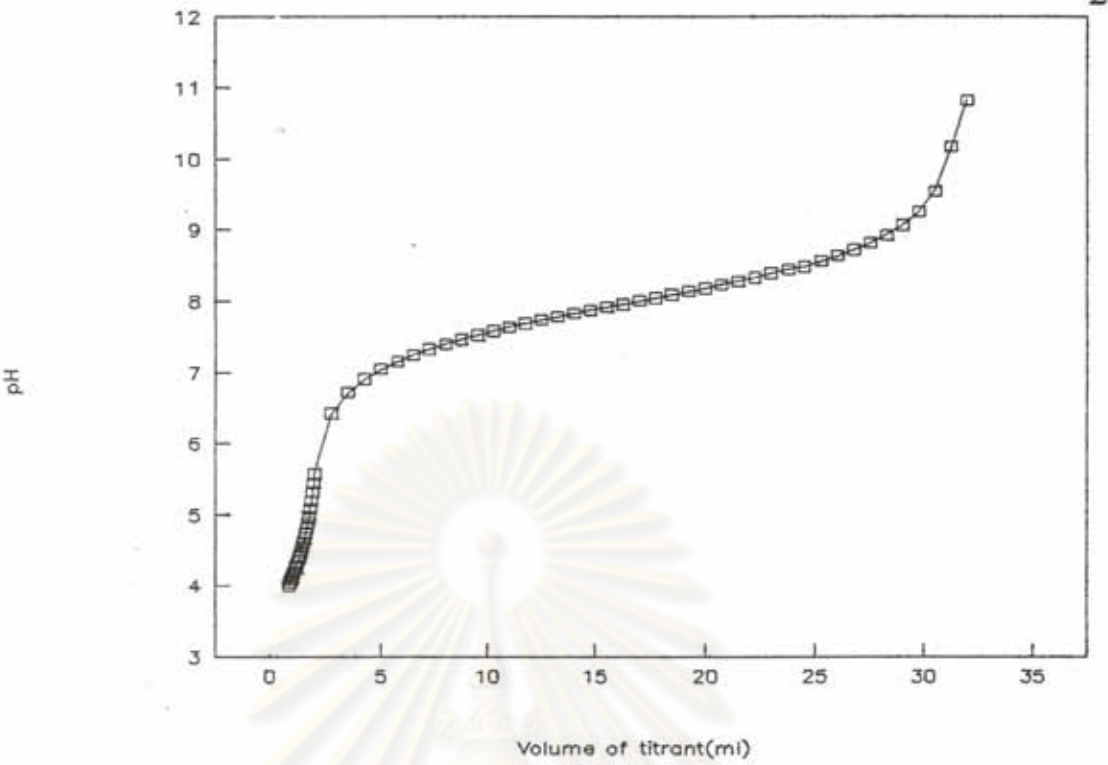

Fig. 87 : Titration curve of the mixture of benzoic acid and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 15.

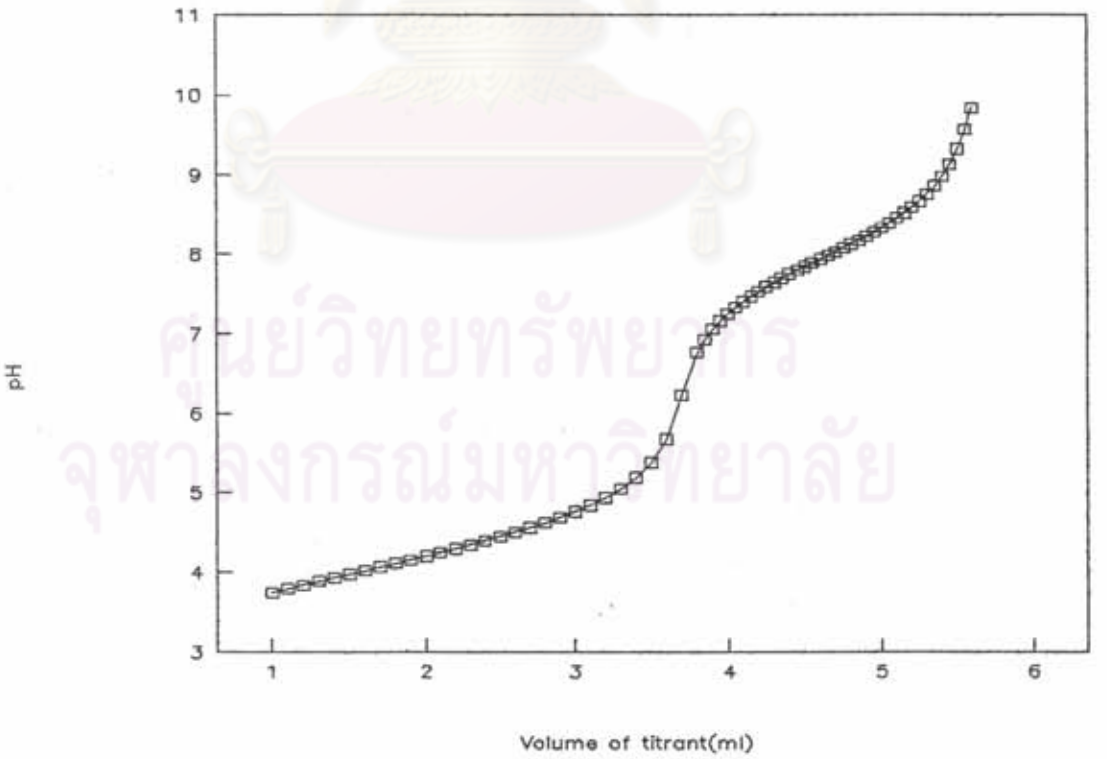

Fig. 88 : Titration curve of the mixture of benzoic acid and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.5.

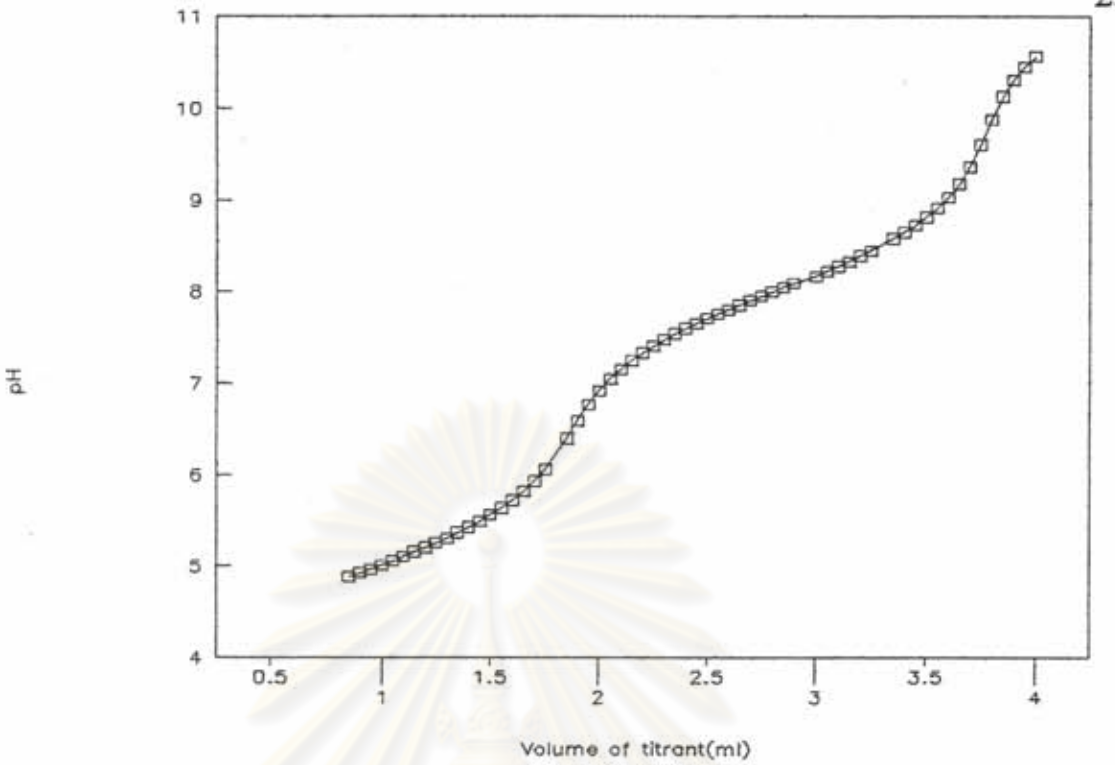

Fig. 89 : Titration curve of the mixture of pivalic acid and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 1.

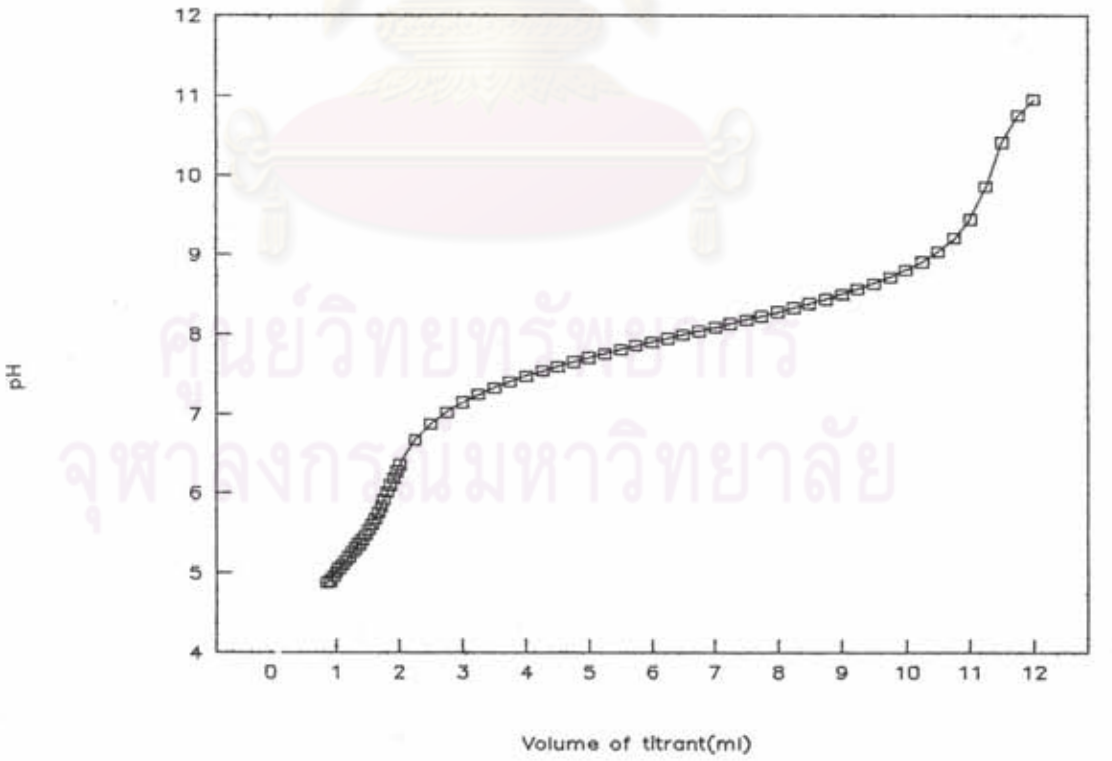

Fig. 90 : Titration curve of the mixture of pivalic acid and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 5.

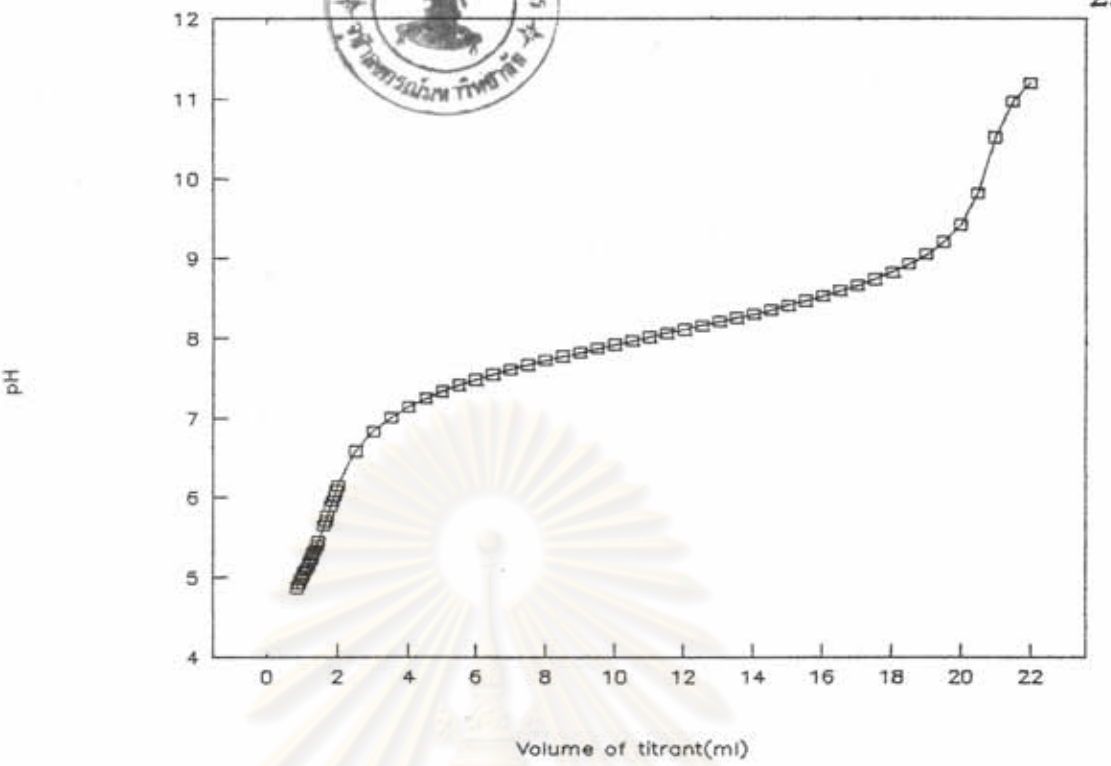

Fig. 91 : Titration curve of the mixture of pivalic acid and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 10.

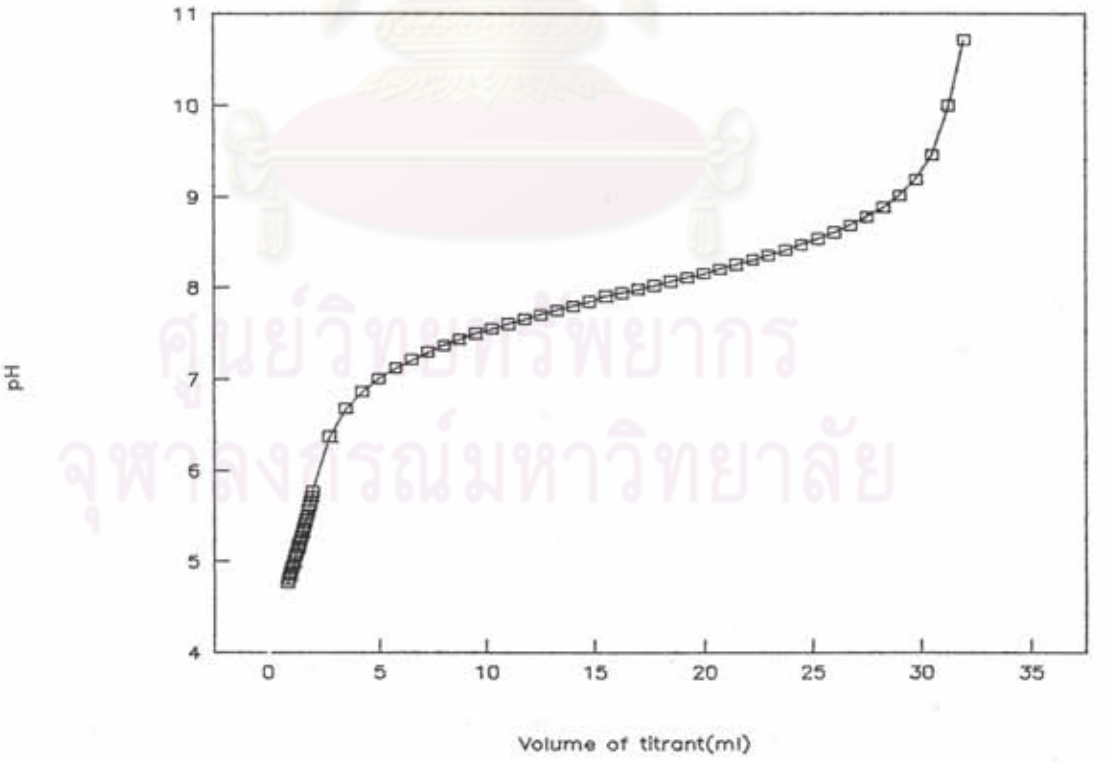

Fig. 92 : Titration curve of the mixture of pivalic acid and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 15.

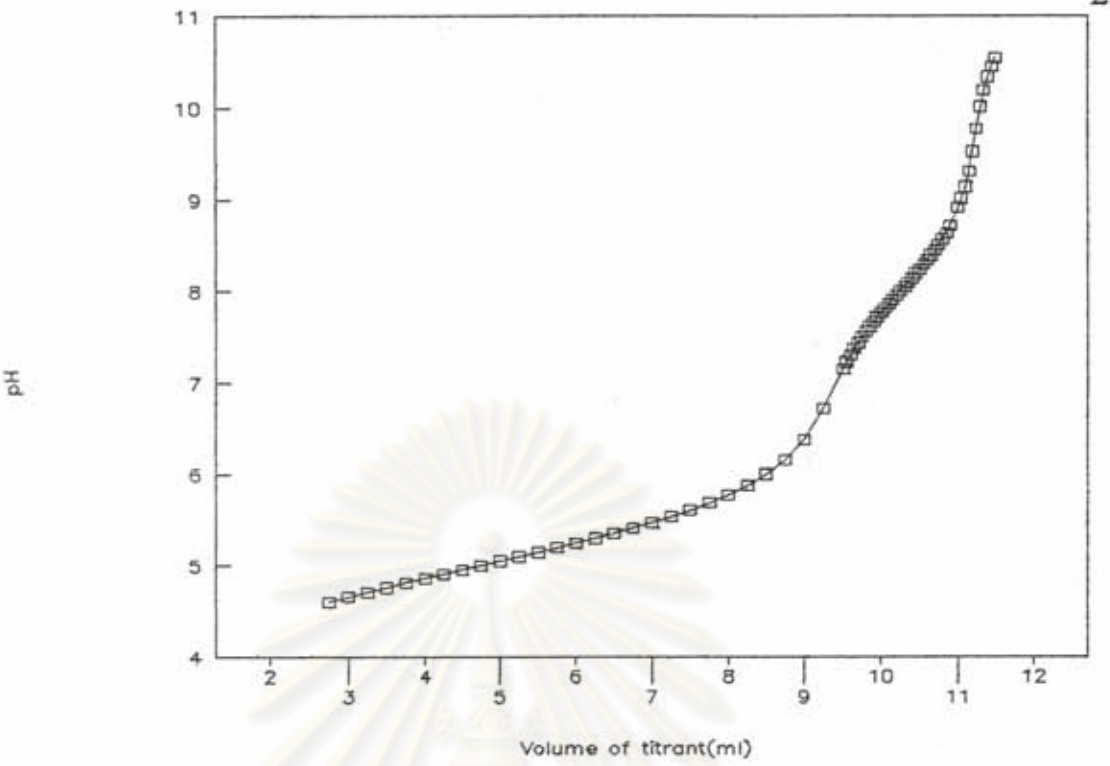

Fig. 93 : Titration curve of the mixture of pivalic acid and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.2.

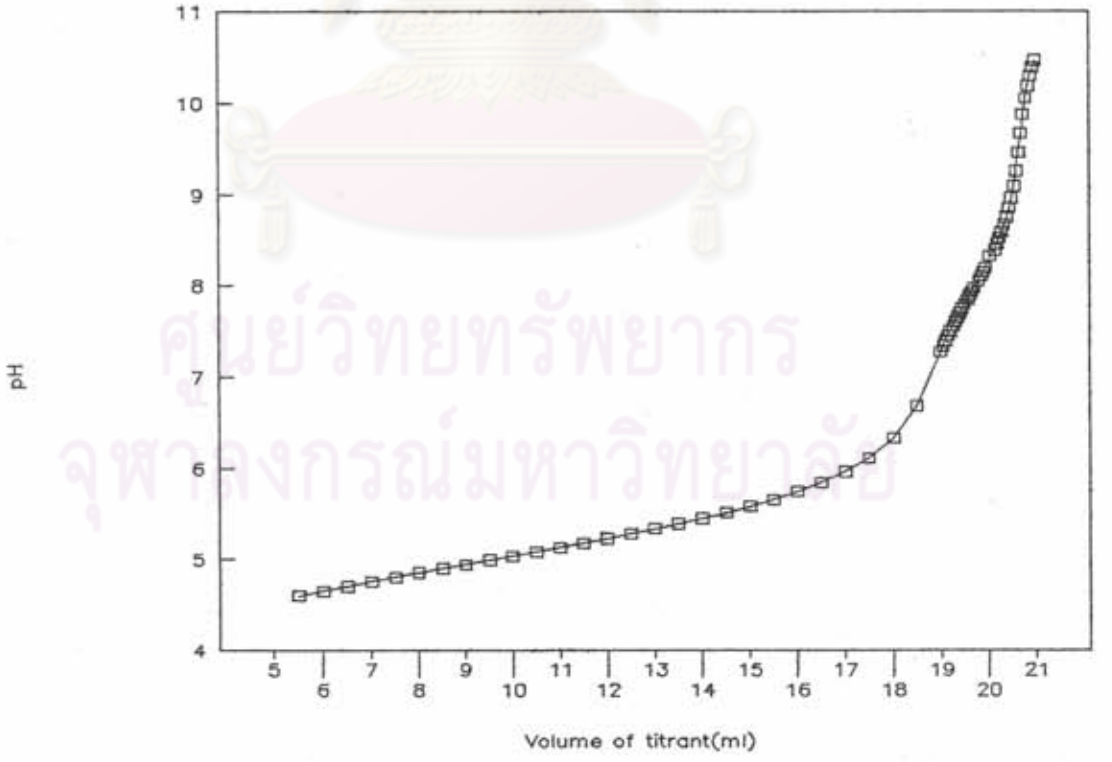

Fig. 94 : Titration curve of the mixture of pivalic acid and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) =0.1.

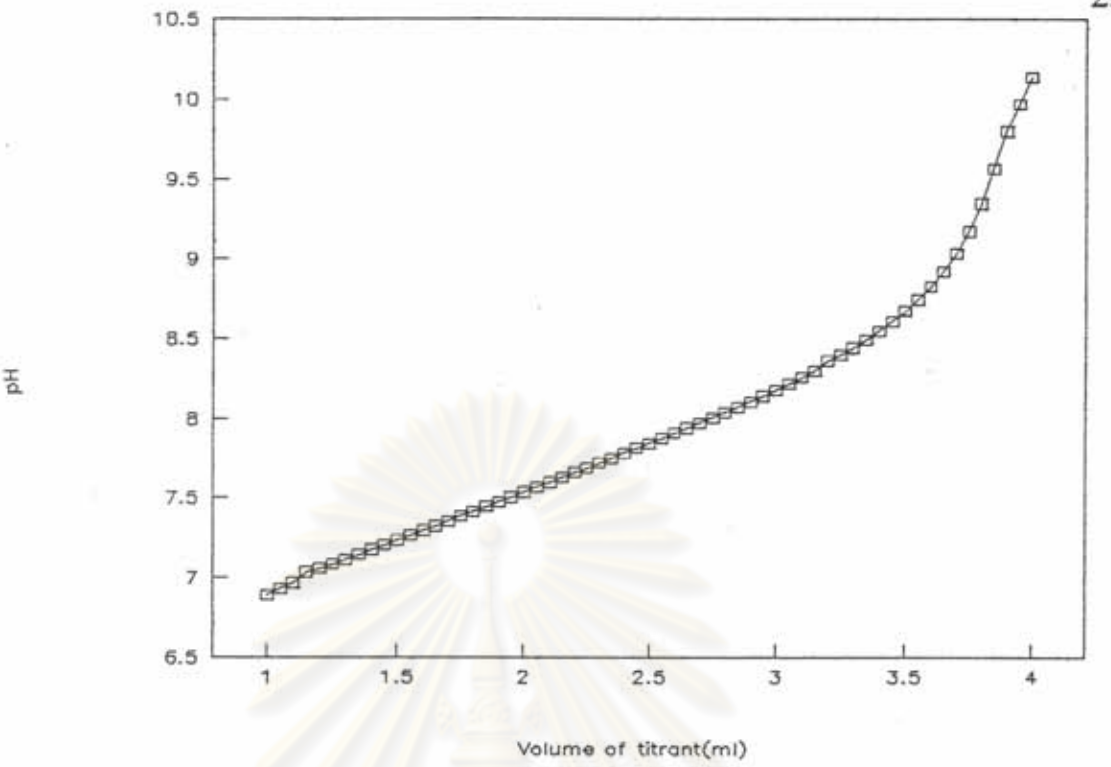

Fig. 95 : Titration curve of the mixture of p-nitrophenol and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 1.

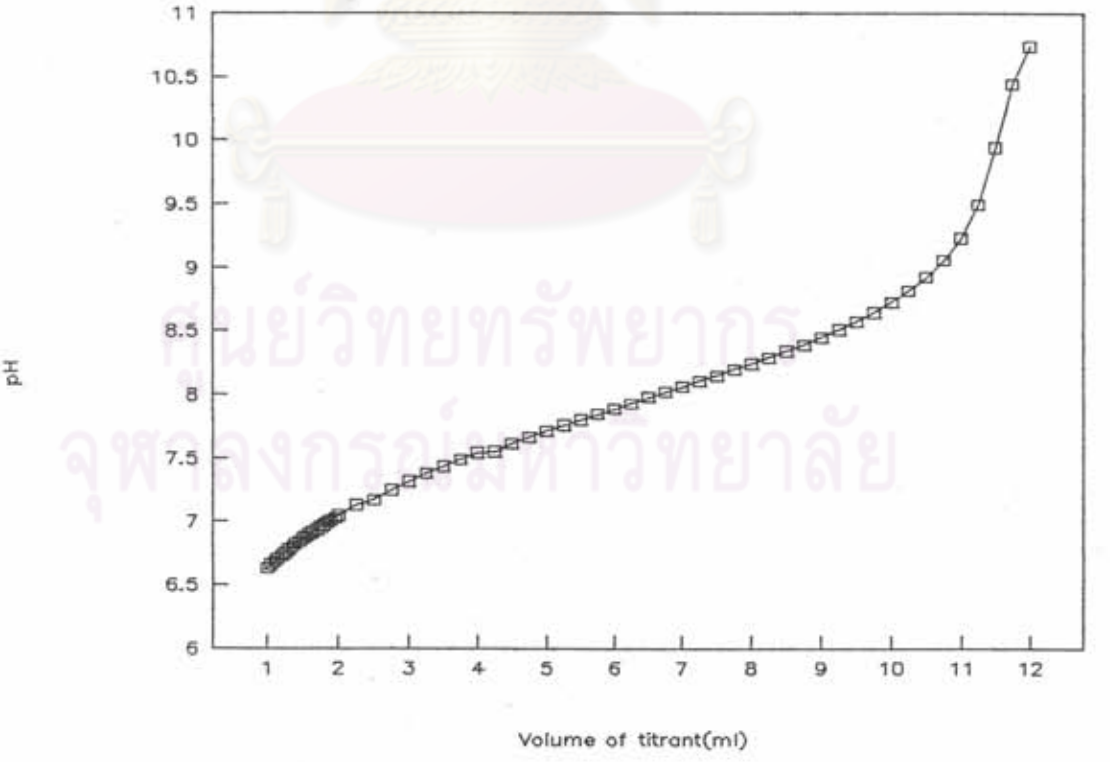

Fig. 96 : Titration curve of the mixture of p-nitrophenol and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 5.

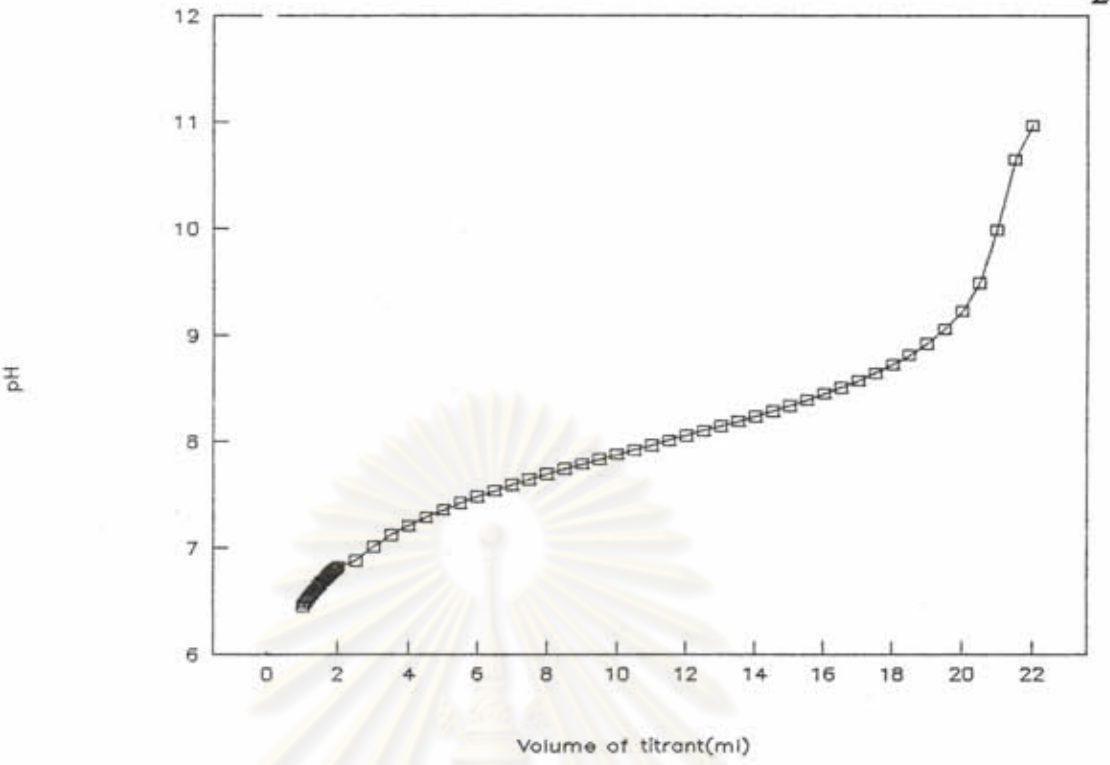

Fig. 97 : Titration curve of the mixture of p-nitrophenol and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 10.

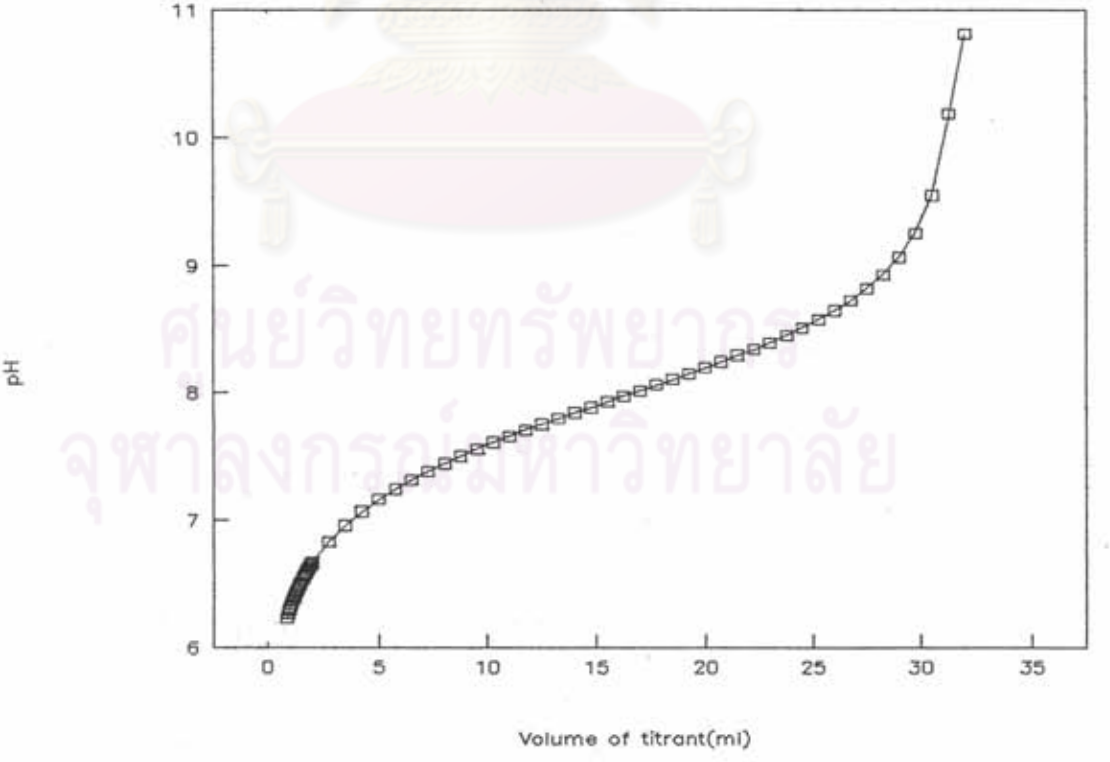

Fig. 98 : Titration curve of the mixture of p-nitrophenol and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 15.

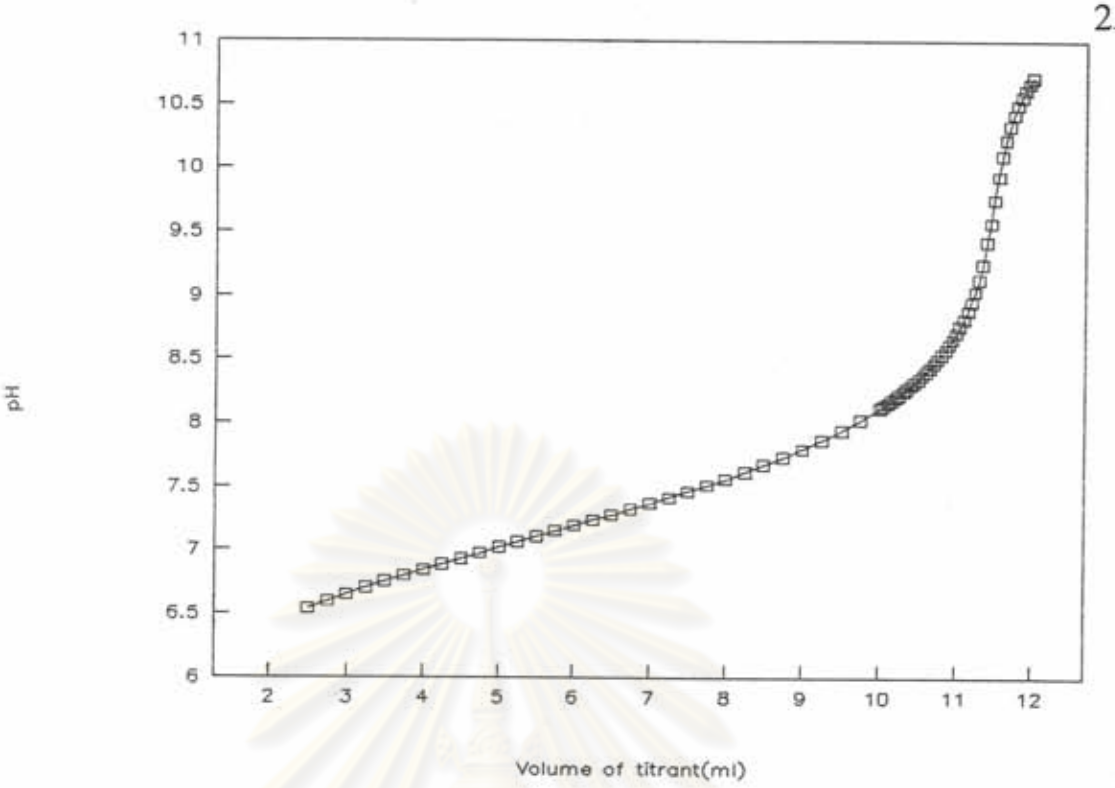

Fig. 99 : Titration curve of the mixture of p-nitrophenol and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.2.

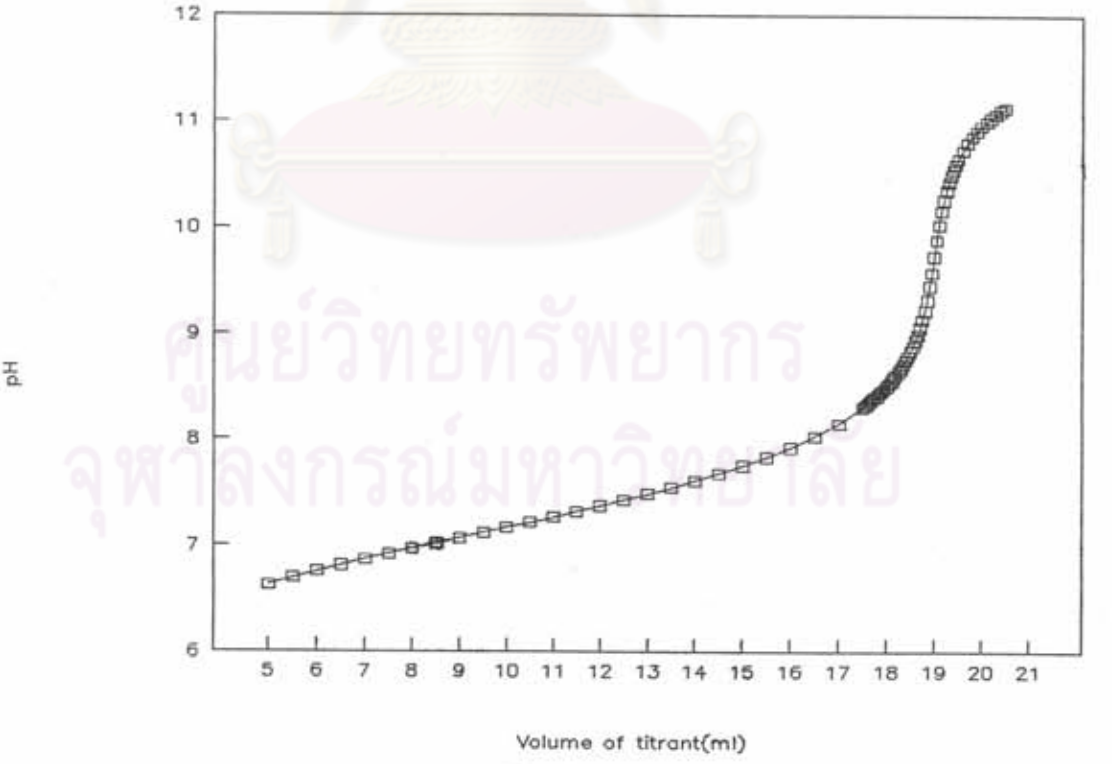

Fig. 100 : Titration curve of the mixture of p-nitrophenol and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.1.

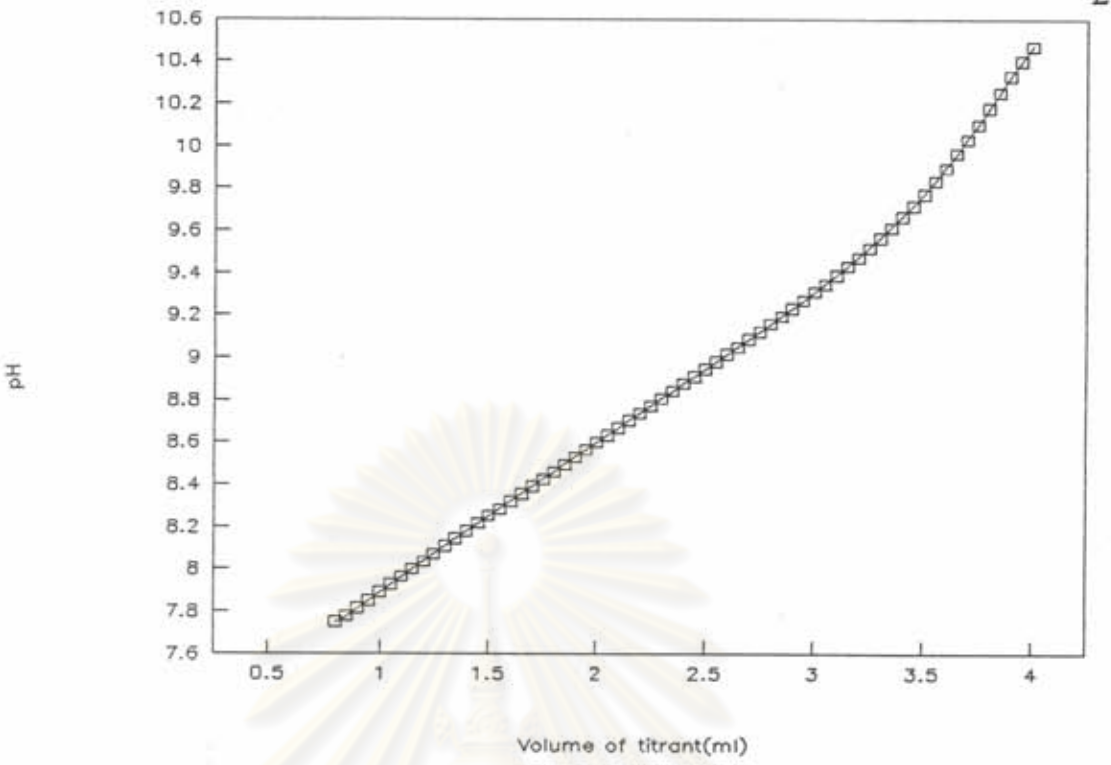

Fig. 101 : Titration curve of the mixture of pralidoxime chloride and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 1.

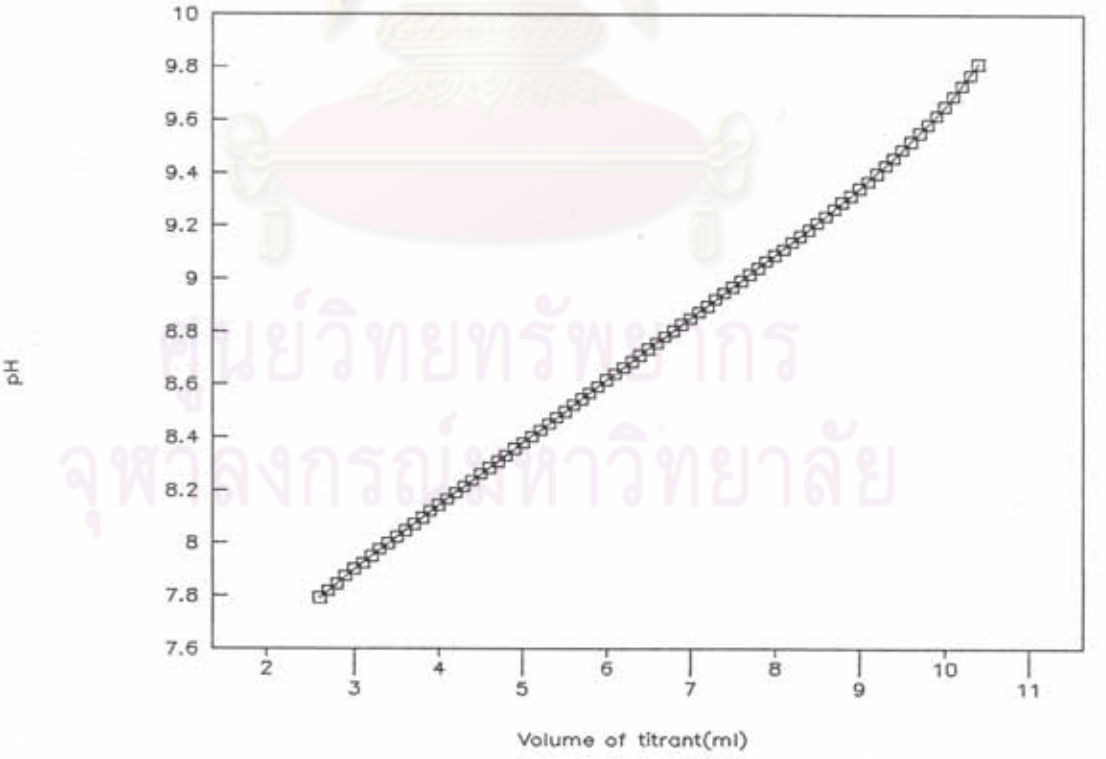

Fig. 102 : Titration curve of the mixture of pralidoxime chloride and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) =1.

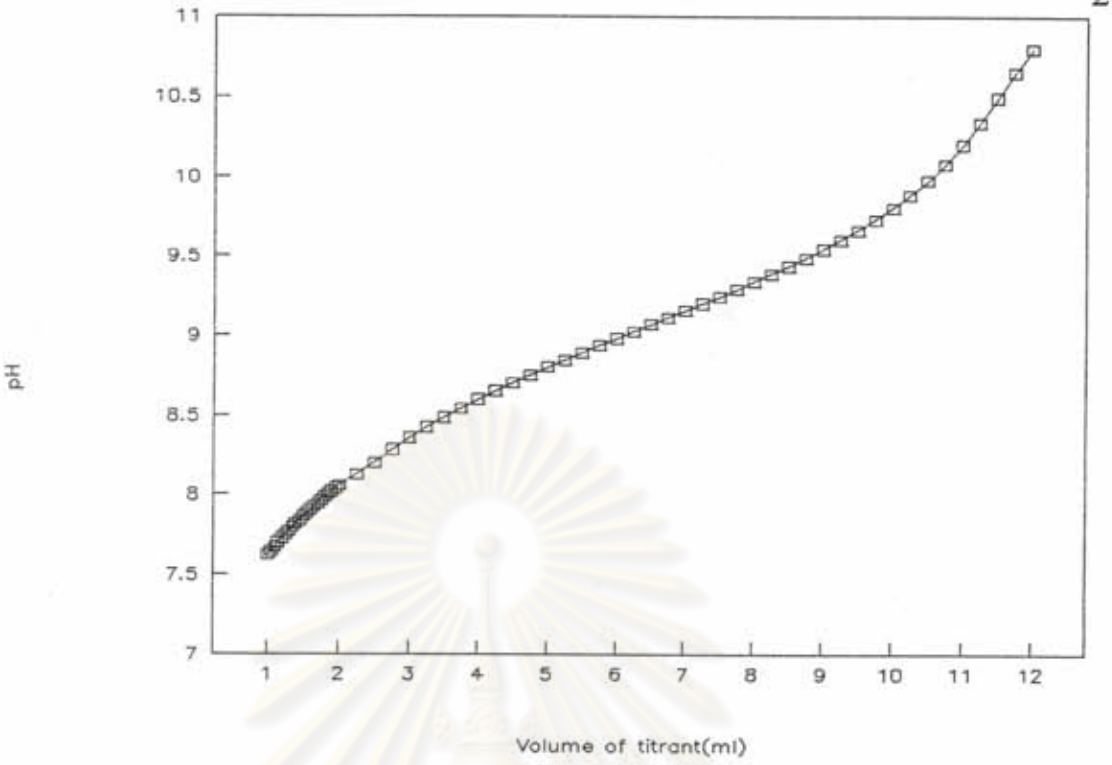

Fig. 103 : Titration curve of the mixture of pralidoxime chloride and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 5.

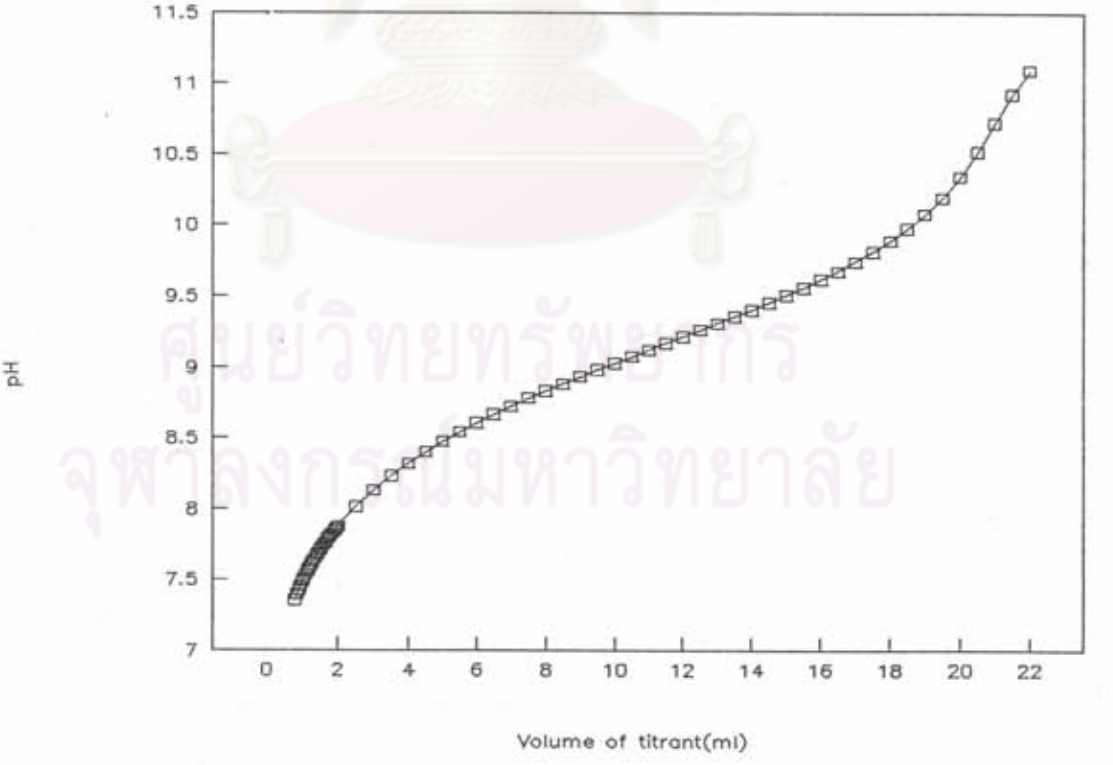

Fig. 104 : Titration curve of the mixture of pralidoxime chloride and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 10.

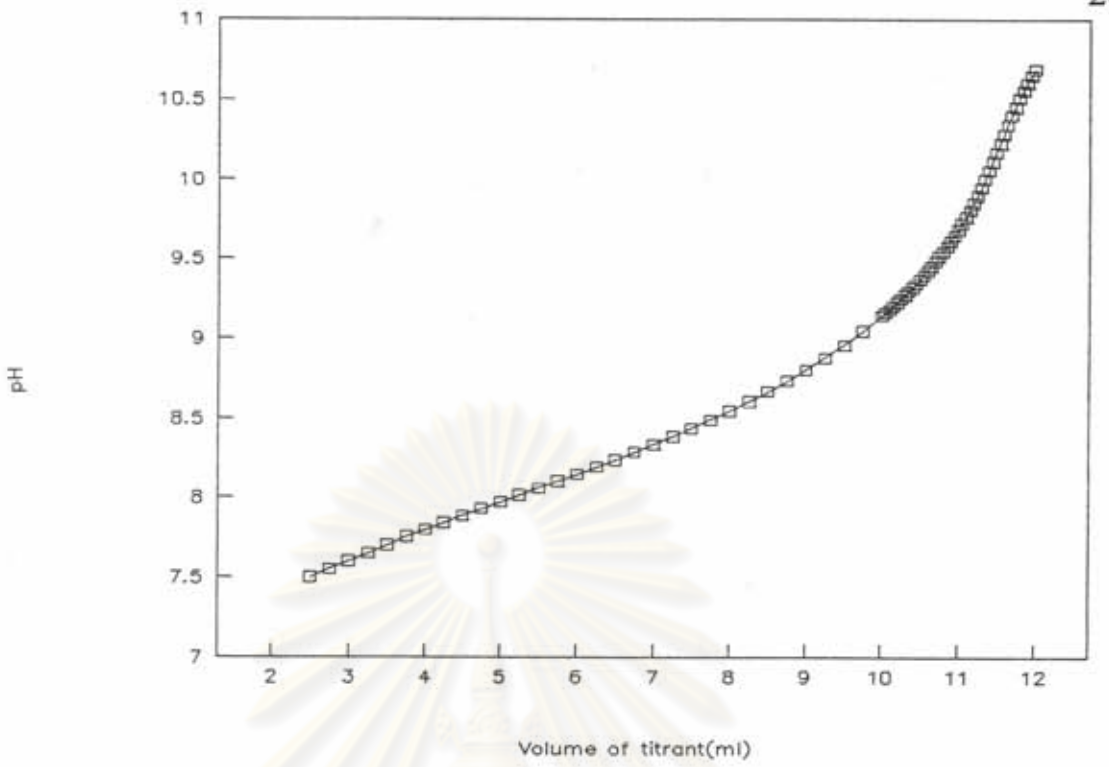

Fig. 105 : Titration curve of the mixture of pralidoxime chloride and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.2.

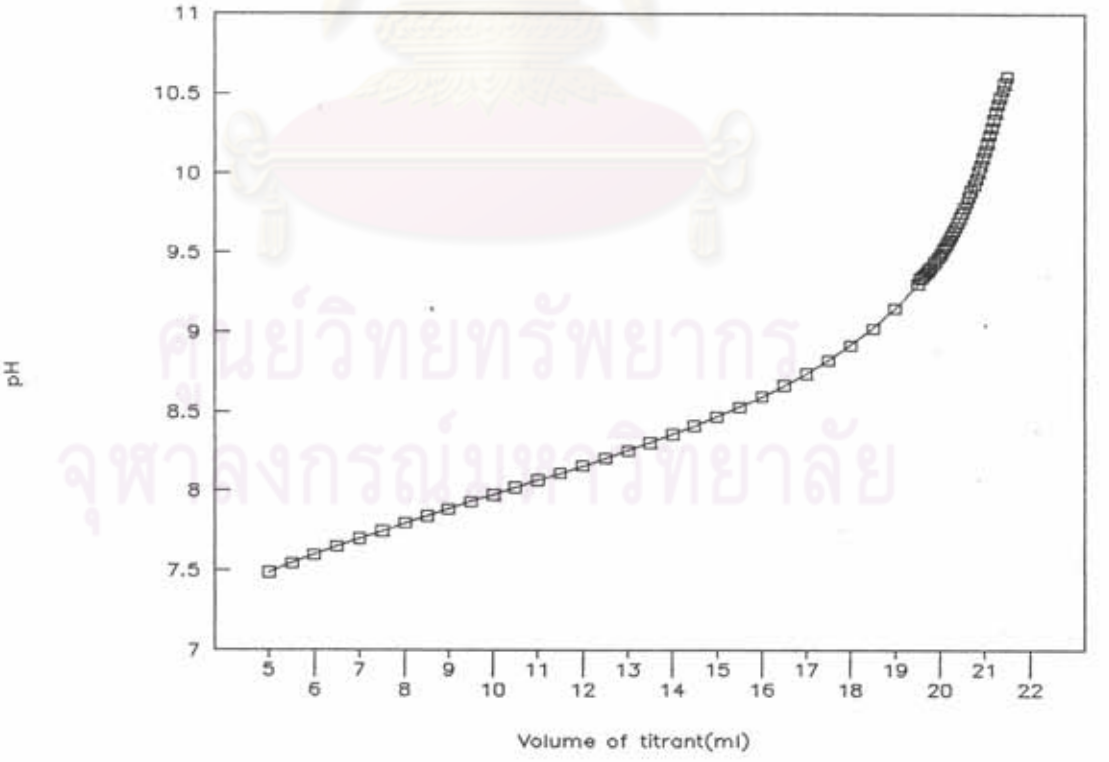

Fig. 106 : Titration curve of the mixture of pralidoxime chloride and boric acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution. The approximate initial concentration ratio (X) = 0.1.

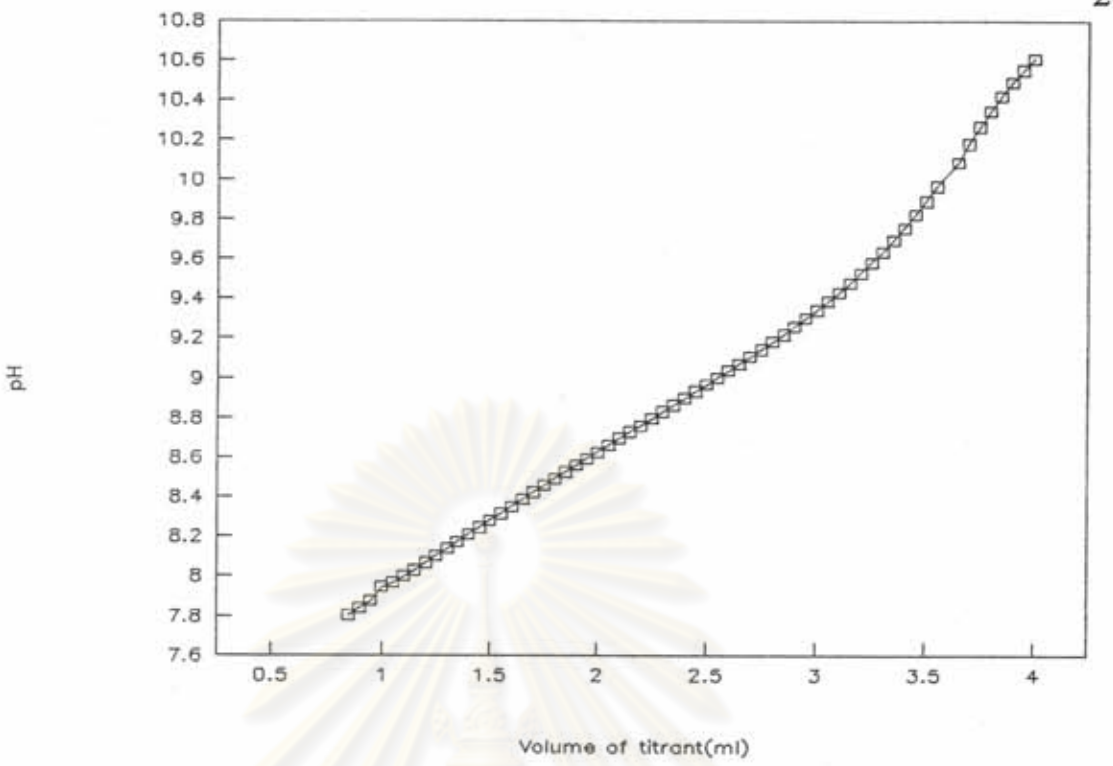

Fig.107 : Titration curve of the mixture of lidocaine hydrochloride and procaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.
The approximate initial concentration ratio (X) = 1.

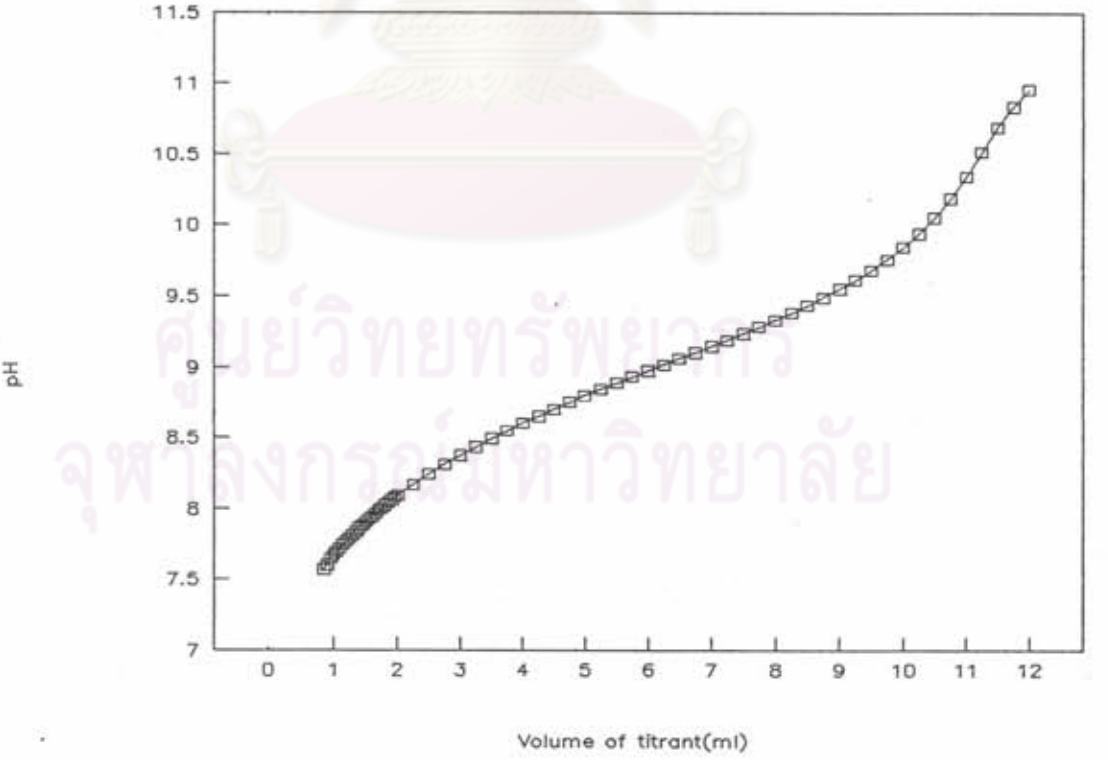

Fig.108 : Titration curve of the mixture of lidocaine hydrochloride and procaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.
The approximate initial concentration ratio (X) = 5.

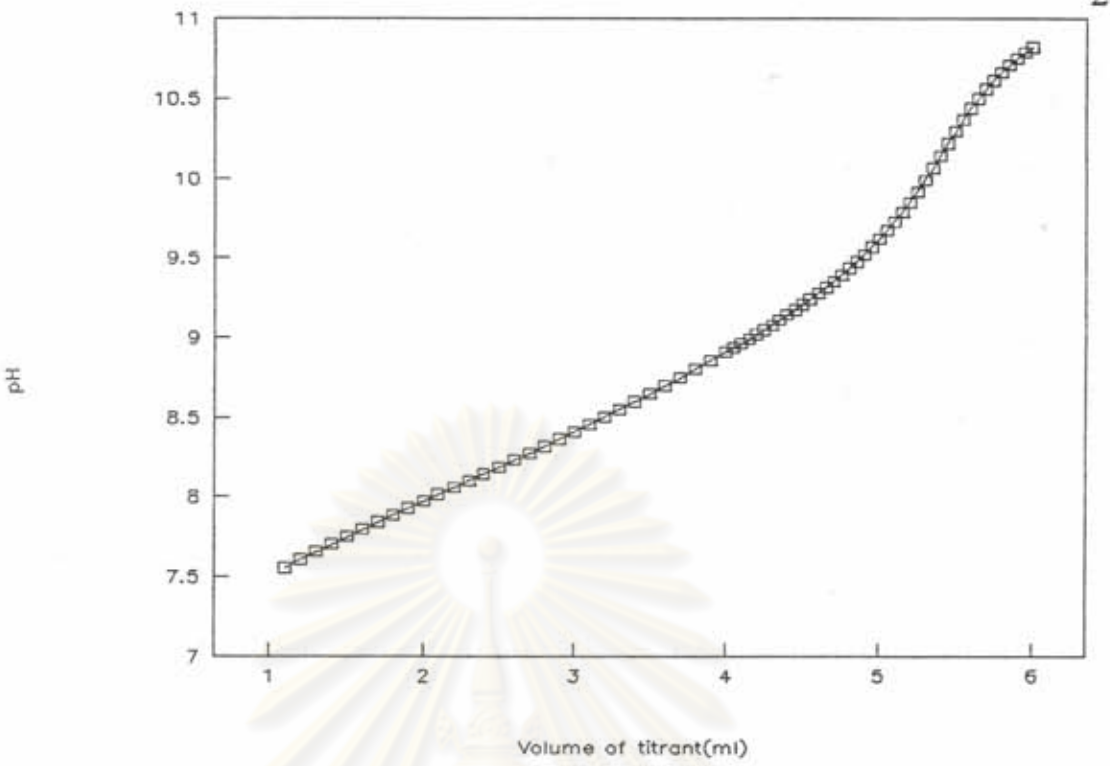

Fig.109 : Titration curve of the mixture of lidocaine hydrochloride and procaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.
The approximate initial concentration ratio (X) = 0.5.

VITA

The author was born on November, 28, 1967 in Lampang Province, Thailand. He received his Bachelor degree with first honors in Pharmacy from Faculty of Pharmacy, Chiangmai University in 1992. After graduation, he will be a staff at the Pharmaceutical Chemistry Department, Faculty of Pharmacy, Chiangmai University.