

การหาปริมาตรที่จุดสมมูลของกรดอ่อนในกรดอ่อนผสมที่มีค่าคงที่ของ
การแตกตัวของกรดใกล้เคียงกัน โดยวิธีโพเทนทิโอเมตริกไทเทรชัน

นางสาว อรัญญา ประชาสิทธิศักดิ์



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาเกศาสตรมหาบัณฑิต

ภาควิชาเกศาสตรเคมี

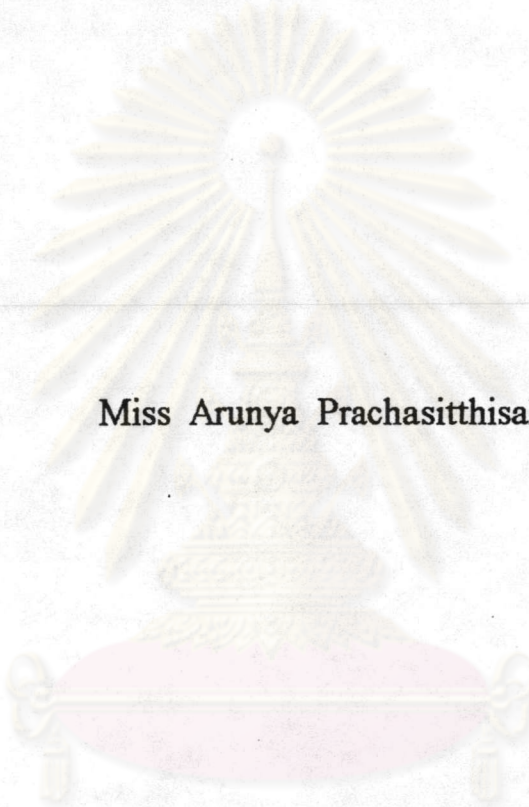
บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย

พ.ศ. 2539

ISBN 974-633-026-8

ลิขสิทธิ์ของบัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย

DETERMINATION OF EQUIVALENCE VOLUMES IN
POTENTIOMETRIC TITRATIONS OF WEAK ACID MIXTURES
OF NEARLY EQUAL ACID STRENGTHS



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A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Pharmacy

Department of Pharmaceutical Chemistry

Graduate School

Chulalongkorn University

1996

ISBN 974-633-026-8

Thesis Title Determination of equivalence volumes in potentiometric titrations of weak acid mixtures of nearly equal acid strengths.

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พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

อรรถฤฎา ประชาลัทธีกิติ : การหาปริมาตรที่จุดสมมูลของกรดอ่อนในกรดอ่อนผสมที่มีค่าคงที่ของการแตกตัวของกรดใกล้เคียงกันโดยวิธีโพเทนทิโอเมตริกไทเทรชัน (DETERMINATION OF EQUIVALENCE VOLUMES IN POTENTIOMETRIC TITRATIONS OF WEAK ACID MIXTURES OF NEARLY EQUAL ACID STRENGTHS) อ.ที่ปรึกษา : อ.ดร. มิตร ปทีปภิช , อ.ที่ปรึกษาร่วม : ศศ. สมเกียรติ รุจิรวัดณ์ , 144 หน้า. ISBN 974-633-026-8

การวิเคราะห์เชิงปริมาณของกรดอ่อนผสมสองตัวที่มีค่าคงที่ของการแตกตัวของกรดใกล้เคียงกัน ($pK_a < 2$) โดยวิธีโพเทนทิโอเมตริกไทเทรชัน ได้มีการปรับปรุงสมการหลายตัวแปรเชิงเส้นที่ได้ให้ถูกต้องยิ่งขึ้น โดยการใช้ค่าคงที่ของการแตกตัวของกรดซึ่งคำนวณได้จากกัมมันตภาพ (activity) ของไอออนต่างๆ (K_a') แทนค่าคงที่ของการแตกตัวของกรดซึ่งคำนวณจากความเข้มข้นของไอออน (K_a) ทั้งนี้เนื่องจากเกิดการเปลี่ยนแปลงความแรงของไอออน (ionic strength) ในสารละลายที่ทำการไทเทรตตลอดเวลา การวิเคราะห์ข้อมูลที่ได้กระทำโดยการวิเคราะห์ความถดถอยแบบหลายตัวแปรเชิงเส้นด้วยโปรแกรมคอมพิวเตอร์สำเร็จรูป SPSS/PC⁺ นอกจากนี้ได้กล่าวถึง ปัจจัยที่มีผลต่อความถูกต้องและแม่นยำของปริมาตรที่จุดสมมูลที่ได้ซึ่งได้แก่ ความแตกต่างของค่าคงที่ของการแตกตัวของกรด การเปลี่ยนแปลงความแรงของไอออนของสารละลายขณะทำการไทเทรต และโดยเฉพาะอย่างยิ่งช่วงข้อมูลที่ใช้ในการแปลผลเพื่อหาช่วงข้อมูลที่เหมาะสม

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ภาควิชาเภสัชเคมี.....
สาขาวิชา
ปีการศึกษา ๒๕๖๘

ลายมือชื่อนิสิต
ลายมือชื่ออาจารย์ที่ปรึกษา
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม

C475090 : MAJOR PHARMACEUTICAL CHEMISTRY

KEY WORD: EQUIVALENCE VOLUME / WEAK ACID MIXTURE / POTENTIOMETRIC TITRATION
ARUNYA PRACHASITTHISAK : DETERMINATION OF EQUIVALENCE VOLUMES IN
POTENTIOMETRIC TITRATIONS OF WEAK ACID MIXTURES OF NEARLY EQUAL ACID
STRENGTHS. THESIS ADVISOR : INSTRUCTOR MITR PATHIPVANICH, Ph.D. ,
THESIS COADVISOR : ASSIS.PROF.SOMKIAT RUJIRAWAT, M.Sc. 144 pp.
ISBN 974-633-026-8

Potentiometric titration method for quantitative analysis of binary mixtures of weak acids of nearly equal acid strengths ($\Delta pK_a < 2$) are studied. The multiple linear equations derived are corrected by using the activity dissociation constant (K_a') instead of the concentration dissociation constant (K_a) since the ionic strength of the solution titrated would be changed during the course of titration. Titration data obtained are analysed by multiple linear regression analysis, using SPSS/PC⁺ computer program. Factors affecting the accuracy and precision of equivalence volumes determination such as ΔpK_a , changes of the ionic strength of solution titrated and especially, the titration data ranges applied to analysis to find the appropriate ranges are discussed.

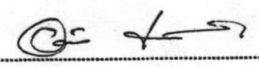


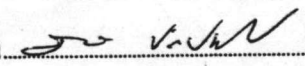
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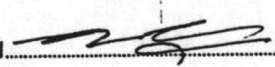
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ลายมือชื่ออาจารย์ที่ปรึกษาร่วม..... 

CONTENTS

	PAGE
THAI ABSTRACT.....	iv
ENGLISH ABSTRACT.....	v
ACKNOWLEDGEMENTS.....	vii
LIST OF TABLES.....	viii
LIST OF FIGURES.....	xiii
CHAPTER	
I. INTRODUCTION.....	1
II. PURPOSE OF INVESTIGATION.....	35
III. EXPERIMENTS.....	36
IV. RESULT AND DISCUSSION.....	49
V. CONCLUSION.....	77
BIBLIOGRAPHY.....	79
APPENDICES	
APPENDIX A.....	84
APPENDIX B.....	106
VITA.....	144

ACKNOWLEDGEMENTS



I am deeply indebted to my thesis advisor , Dr. Mitr Pathipvanich and my thesis co-advisor , Assistant Professor Somkiat Rujirawat for their helpful guidance , suggestions , and encouragement throughout the course of this study. Their patience and kindness are also deeply appreciated.

I would like to express my thank to Associate Professor Suttatip Chantaraskul and all staff members of the Department of Pharmaceutical Chemistry, Faculty of Pharmaceutical Science , Chulalongkorn University for their kindness and helpful.

I wish to express deep appreciation to all members of the thesis committee for their helpful comments. Thanks are also due to Chulalongkorn University for granting partial financial support to fulfil this study.

Special thanks are expressed to all my friends for their friendship, cheerfulness during my graduate study.

Finally , I would like to express my infinite gratitude to my parents for their love , understanding and encouragement.

LIST OF TABLES

Table No.		Page
1	5 Methods for choosing titration data ranges for data analysis.....	84
2	The dissociation constant (K_a) and pK_a of weak acidic compounds.....	85
3	Weak acid mixtures and their ΔpK_a	86
4	The equivalence volume for <i>p</i> -nitrophenol obtained from the titration of single acid solution and the titration of <i>p</i> -nitrophenol-vanillin mixture.....	87
5	The equivalence volume for vanillin obtained from the titration of single acid solution and the titration of <i>p</i> -nitrophenol-vanillin mixture.....	87
6	The equivalence volume for vanillin obtained from the titration of single acid solution and the titration of vanillin-salicylamide mixture.....	88
7	The equivalence volume for salicylamide obtained from the titration of single acid solution and the titration of vanillin-salicylamide mixture.....	88
8	The equivalence volume for <i>p</i> -nitrophenol obtained from the titration of single acid solution and the titration of <i>p</i> -nitrophenol-salicylamide mixture.....	89

Table No.	Page
9	The equivalence volume for salicylamide obtained from the titration of single acid solution and the titration of <i>p</i> -nitrophenol-salicylamide mixture..... 89
10	The equivalence volume for lidocaine hydrochloride obtained from the titration of single acid solution and the titration of lidocaine hydrochloride-salicylamide mixture..... 90
11	The equivalence volume for salicylamide obtained from the titration of single acid solution and the titration of lidocaine hydrochloride -salicylamide mixture..... 90
12	The equivalence volume for pralidoxime chloride obtained from the titration of single acid solution and the titration of pralidoxime chloride-salicylamide mixture..... 91
13	The equivalence volume for salicylamide obtained from the titration of single acid solution and the titration of pralidoxime chloride-salicylamide mixture..... 91
14	The equivalence volume for vanillin obtained from the titration of single acid solution and the titration of vanillin-pralidoxime chloride mixture..... 92
15	The equivalence volume for pralidoxime chloride obtained from the titration of single acid solution and the titration of vanillin-pralidoxime chloride mixture..... 92
16	The equivalence volume for vanillin obtained from the titration of single acid solution and the titration of vanillin-lidocaine hydrochloride mixture..... 93

Table No.		Page
17	The equivalence volume for lidocaine hydrochloride obtained from the titration of single acid solution and the titration of vanillin-lidocaine hydrochloride mixture.....	93
18	The equivalence volume for <i>p</i> -nitrophenol obtained from the titration of single acid solution and the titration of <i>p</i> -nitrophenol-pralidoxime chloride mixture.....	94
19	The equivalence volume for pralidoxime chloride obtained from the titration of single acid solution and the titration of <i>p</i> -nitrophenol-pralidoxime chloride mixture.....	94
20	The equivalence volume of <i>p</i> -nitrophenol obtained from the titration of single acid solution and the titration of <i>p</i> -nitrophenol-lidocaine hydrochloride mixture.....	95
21	The equivalence volume for lidocaine hydrochloride obtained from the titration of single acid solution and the titration of <i>p</i> -nitrophenol-lidocaine hydrochloride mixture.....	95
22	The equivalence volume for benzoic acid obtained from the titration of single acid solution and the titration of benzoic acid-potassium biphthalate mixture.....	96
23	The equivalence volume for potassium biphthalate obtained from the titration of single acid solution and the titration of benzoic acid-potassium biphthalate mixture.....	96
24	The equivalence volume for salicylamide obtained from the titration of single acid solution and the titration of salicylamide-procaine hydrochloride mixture.....	97

Table No.	Page
25	The equivalence volume for procaine hydrochloride obtained from the titration of single acid solution and the titration of salicylamide-procaine hydrochloride mixture..... 97
26	The equivalence volume for vanillin obtained from the titration of single acid solution and the titration of vanillin-procaine hydrochloride mixture..... 98
27	The equivalence volume for procaine hydrochloride obtained from the titration of single acid solution and the titration of vanillin-procaine hydrochloride mixture..... 98
28	The equivalence volume for pralidoxime chloride obtained from the titration of single acid solution and the titration of pralidoxime chloride-lidocaine hydrochloride mixture..... 99
29	The equivalence volume for lidocaine hydrochloride obtained from the titration of single acid solution and the titration of pralidoxime chloride-lidocaine hydrochloride mixture..... 99
30	The equivalence volume for lidocaine hydrochloride obtained from the titration of single acid solution and the titration of lidocaine hydrochloride-procaine hydrochloride mixture..... 100
31	The equivalence volume for procaine hydrochloride obtained from the titration of single acid solution and the titration of lidocaine hydrochloride-procaine hydrochloride mixture..... 100
32	The equivalence volume for pralidoxime chloride obtained from the titration of single acid solution and the titration of pralidoxime chloride-procaine hydrochloride mixture..... 101

Table No.	Page
33	The equivalence volume for procaine hydrochloride obtained from the titration of single acid solution and the titration of pralidoxime chloride-procaine hydrochloride mixture..... 101
34	The results from the titration of weak acid mixtures..... 102
35	The slope of buffer region from the titration curves of two-mixed weak acids solution (minimum slope)..... 103
36	% number of data points of two-mixed weak acid titrations used for multiple linear regression analysis..... 104
37	Number of data points of two-mixed weak acid titrations used for multiple linear regression analysis 105

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

LIST OF FIGURES

Figure No.		Page
1	G plot linearity range of acid A (stronger acid).....	106
2	G plot linearity range of acid B (weaker acid).....	107
3	Titration data range chosen by Method A.....	108
4	Titration data range chosen by Method B.....	109
5	Titration data range chosen by Method C.....	110
6	Titration data range chosen by Method D.....	111
7	Titration curve of benzoic acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.....	112
8	Titration curve of potassium biphthalate in 0.1M potassium chloride solution with 0.1 N sodium hydroxide solution.....	113
9	Titration curve of p-nitrophenol in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.....	114
10	Titration curve of vanillin in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.....	115
11	Titration curve of pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.....	116
12	Titration curve of lidocaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.....	117
13	Titration curve of salicylamide in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.....	118
14	Titration curve of procaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution.....	119

Figure No.	Page
15	G plot for the titration of benzoic acid in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 120
16	G plot for the titration of potassium biphthalate in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 121
17	G plot for the titration of p-nitrophenol in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 122
18	G plot for the titration of vanillin in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 123
19	G plot for the titration of pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 124
20	G plot for the titration of lidocaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 125
21	G plot for the titration of salicylamide in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 126
22	G plot for the titration of procaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 127
23	Titration curve of the mixture of p-nitrophenol and vanillin in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 128

Figure No.	Page
24	Titration curve of the mixture of vanillin and salicylamide in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 129
25	Titration curve of the mixture of p-nitrophenol and salicylamide in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 130
26	Titration curve of the mixture of salicylamide and lidocaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 131
27	Titration curve of the mixture of salicylamide and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 132
28	Titration curve of the mixture of vanillin and pralidoxime chloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 133
29	Titration curve of the mixture of vanillin and lidocaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 134
30	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..... 135
31	Titration curve of the mixture of p-nitrophenol and lidocaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 136

Figure No.	Page
32	Titration curve of the mixture of benzoic acid and potassium biphthalate in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 137
33	Titration curve of the mixture of salicylamide and procaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 138
34	Titration curve of the mixture of vanillin and procaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 139
35	Titration curve of the mixture of pralidoxime chloride and lidocaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 140
36	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..... 141
37	Titration curve of the mixture of pralidoxime chloride and procaine hydrochloride in 0.1 M potassium chloride solution with 0.1 N sodium hydroxide solution..... 142
38	Single ion activity coefficients as a function of ionic strength of the solution..... 143