

การเตรียมไอบูโพรเฟนไคโปไซมจากเจซิทินด้วยวิธีเมคานิคัลดิสเพอร์ชัน

นางสาว นฤมล วังวิทยา



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาเกดษศาสตรมหาบัณฑิต

สาขาวิชาเกดษกรรม ภาควิชาเกดษกรรม

บัณฑิตวิทยาถัย จุฬาลงกรณ์มหาวิทยาลัย

ปีการศึกษา 2540

ISBN 974-638-556-9

ลิขสิทธิ์ของบัณฑิตวิทยาถัย จุฬาลงกรณ์มหาวิทยาลัย

**PREPARATION OF IBUPROFEN LIPOSOMES  
USING SOYBEAN LECITHIN  
BY MECHANICAL DISPERSION METHOD**



**Miss Narumol Vangvithya**

**A Thesis Submitted in Partial Fulfillment of the Requirements**

**for the Degree of Master of Science in Pharmacy**

**Department of Pharmacy**

**Graduate School**

**Chulalongkorn University**

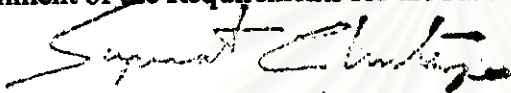
**Academic Year 1997**

**ISBN 934-638-556-9**

Thesis Title            Preparation of Ibuprofen Liposomes Using Soybean Lecithin by  
   Mechanical Dispersion Method  
By                            Miss Narumol Vangvithya  
Department            Pharmacy  
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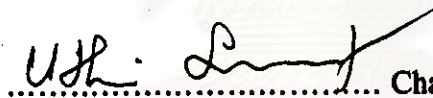
Accepted by the Graduate School, Chulalongkorn University in Partial  
Fulfillment of the Requirements for the Master's Degree



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Thesis Committee



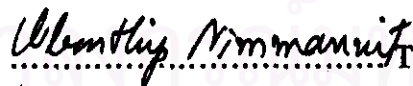
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พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

นฤมล วงษ์วิทยา : การเตรียมไลโปโซมจากเลซิทินถั่วเหลืองด้วยวิธีเมคานิคัลดิสเพอร์ชัน

(PREPARATION OF IBUPROFEN LIPOSOMES USING SOYBEAN LECITHIN BY MECHANICAL DISPERSION METHOD) อ. ที่ปรึกษา : รศ. สุชาดา ประเสริฐวิทยาการ, อ. ที่ปรึกษา

ร่วม : รศ. ดร. อุบลทิพย์ นิมมานนิตย์ ; 157 หน้า. ISBN 974-638-556-9.

ไลโปโซมเตรียมจากเลซิทินถั่วเหลืองด้วยวิธีเมคานิคัลดิสเพอร์ชัน สภาวะที่เหมาะสมในการเตรียมเพื่อให้ได้เป็นฟิล์มไขมันบางคือ ใช้คลอโรฟอร์มปริมาณ 20 มิลลิลิตรละลายไลโปโซมและเลซิทินถั่วเหลืองที่อุณหภูมิระเหยแห้ง 35 องศาเซลเซียส เป็นเวลา 3 ชั่วโมง สารแขวนลอยไลโปโซมเกิดขึ้นหลังจากผสมกับน้ำ 3 มิลลิลิตร นาน 2 ชั่วโมง การศึกษาภายใต้กล้องจุลทรรศน์อิเล็กตรอนพบว่า ไลโปโซมที่ได้มีลักษณะกลมและมีโครงสร้างผนังไลโปโซมหลายชั้น สัดส่วนโดยโมลของเลซิทินถั่วเหลืองต่อไลโปโซมเท่ากับ 1:0.144 ซึ่งเป็นสัดส่วนที่ไลโปโซมมีอนุภาคใหญ่ที่สุดและไลโปโซมถูกกักเก็บไว้ในไลโปโซมมากที่สุดอย่างมีนัยสำคัญทางสถิติ ( $P < 0.05$ ) โดยไม่มีผลึกปรากฏ สัดส่วนโดยโมลของเลซิทินถั่วเหลืองต่อโคเลสเตอรอลเท่ากับ 9:1 ทำให้ขนาดอนุภาคของไลโปโซมเล็กลงและการกักเก็บยาลดลง เมื่อเติมสเตียริลเอมีนปริมาณ 2.50 โมลเปอร์เซ็นต์ ทำให้ขนาดอนุภาคของไลโปโซมเล็กลงและการกักเก็บยาลดลง ขณะที่เติมอัลฟาโทโคเฟอรอลปริมาณ 0.001-0.025 เปอร์เซ็นต์ ทำให้อนุภาคของไลโปโซมใหญ่ขึ้นแต่การกักเก็บยาไม่เปลี่ยนแปลง ความเข้มข้นของไลโปโซมมีผลต่อขนาดอนุภาคและการกักเก็บยาของไลโปโซมมากกว่าสารชอบไขมันตัวอื่นที่เติมลงไป การเปรียบเทียบไลโปโซมที่เตรียมขึ้นใหม่กับที่เก็บไว้ที่ 4 องศาเซลเซียส เป็นเวลา 1 เดือนพบว่า มีไลโปโซมเพียง 2 สูตรเท่านั้นที่ขนาดอนุภาคของไลโปโซมและการกักเก็บยาไม่มีการเปลี่ยนแปลง สูตรแรกประกอบด้วยสัดส่วนโดยโมลของเลซิทินถั่วเหลืองต่อโคเลสเตอรอล เท่ากับ 9:1 และสเตียริลเอมีนปริมาณ 2.50 โมลเปอร์เซ็นต์ สูตรที่สองประกอบด้วย สัดส่วนโดยโมลของเลซิทินถั่วเหลืองต่อโคเลสเตอรอลเท่ากับ 9:1 สเตียริลเอมีนปริมาณ 2.50 โมลเปอร์เซ็นต์และอัลฟาโทโคเฟอรอลปริมาณ 0.0125 เปอร์เซ็นต์ ไลโปโซมทั้งสองสูตรยังคงเป็นสารแขวนลอย การศึกษาภายใต้กล้องจุลทรรศน์อิเล็กตรอนพบว่า ไลโปโซมไม่เปลี่ยนแปลงยังคงมีลักษณะกลม

สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

ภาควิชา .....  
สาขาวิชา .....  
ปีการศึกษา .....  
เลขที่ชกรรม .....  
เลขที่ชกรรม .....  
2540

ลายมือชื่อนิสิต .....  
ลายมือชื่ออาจารย์ที่ปรึกษา .....  
ลายมือชื่ออาจารย์ที่ปรึกษา .....  
ลายมือชื่ออาจารย์ที่ปรึกษา .....  
ลายมือชื่ออาจารย์ที่ปรึกษา .....





## ACKNOWLEDGEMENTS

I would like to express my special, sincere thanks and gratitude to my advisor, Associate Professor Suchada Prasertvithyakarn, for her helpful advices, guidance, suggestions and encouragement throughout my study. No words can express my gratitude for the contribution she has made.

I am very grateful to my co-advisor, Associate Professor Dr. Ubonthip Nimmannit, for her kindness, invaluable advices and correction of this thesis.

I am very appreciate to Associate Professor Nuansri Niwattisaiwong for her helpful and invaluable advices in UV spectrophotometric analysis.

My very deep appreciation is extended to Dr. Narumol Sutcharitdham, my former boss, who gave me a chance, supporting and invaluable advices.

Special thanks to grant from the Graduate School, Department of Pharmacy and the Government Fund through Chulalongkorn University including all of people whom my thesis concerned with, for their assistance in the supported equipment and the help during my study.

Ultimately, I would like to express my infinite gratitude to my family, especially my sisters, and my friends for their love, kindness, enthusiastic support and understanding throughout my graduate study.

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จุฬาลงกรณ์มหาวิทยาลัย



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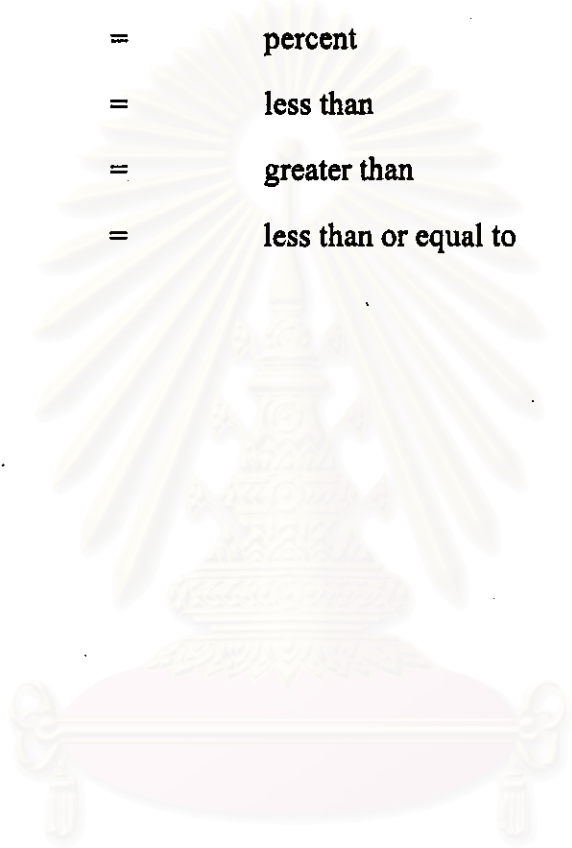
ANOVA	=	analysis of variance
AUCs	=	serum concentration-time curves
°C	=	degree Celsius
CHEMS	=	cholesteryl hemisuccinate
cm	=	centimeter
conc.	=	concentration
CV	=	coefficient of variation
Da	=	Dalton
DDAB	=	dimethyl-dioctadecyl ammonium chloride
DMRIE	=	1,2-dimyristyloxypropyl-3-dimethyl- hydroxyethyl ammonium bromide
DNA	=	deoxyribonucleic acid
DOGS	=	dioctadecyldimethyl ammonium chloride
DOPE	=	dioleylphosphatidyl ethanolamine
DORIE	=	1,2-dioleilyoxypropyl-3-dimethyl-hydroxyethyl ammonium bromide
DOSPA	=	2,3-dioleilyoxy-N-(2(spermine carboxamido)- ethyl)-N,N-dimethyl-1-propanamonium fluoroacetate
DOTAP	=	1,2-dioleilyoxy-3-(trimethylammonio) propane
DOTMA	=	N- $\{1-(2,3-dioleilyoxy)propyl\}$ -N,N,N-trimethyl ammonium chloride
DRV	=	dried-reconstituted vesicles



ed. (eds)	=	editor
EDTA	=	ethylenedinitrilo tetraacetic acid
EIV	=	ether injection vesicles
et al	=	et alii, and others
FPV	=	french press vesicles
g	=	gram
g/mol	=	gram per mole
µg/ml	=	microgram per milliliter
GM1	=	monigenic liposomes
HPI	=	hydrogenated phosphatidylinositol
IUV	=	intermediate-size unilamellar vesicles
kg	=	kilogram
l	=	liter
l/mole	=	liter per mole
µl	=	microliter
LUV	=	large unilamellar vesicles
mg	=	milligram
mg/kg	=	milligram per kilogram
mg/ml	=	milligram per milliliter
min	=	minute
ml	=	milliliter
ml/min	=	milliliter per minute
mm	=	millimeter
µm	=	micrometer
µmol	=	micromole
µmol/ml	=	micromole per milliliter
M	=	molar

MEL	=	micro-emulsification liposomes
MIC	=	minimum inhibitory concentration
MLV	=	multilamellar vesicles
MVL	=	multivesicular liposomes
nm	=	nanometer
no.	=	number
OA	=	oleic acid
OLV	=	oligo-lamellar vesicles
PBS	=	phosphate buffer saline
PE	=	phosphatidylethanolamine
PEG-DSPE	=	polyethylene glycol conjugated with distearoyl phosphatidylethanolamine
pH	=	the negative logarithm of the hydrogen ion concentration
pp.	=	page
ppm	=	part per million
RES	=	reticuloendothelial system
REV	=	reverse-phase evaporation vesicles
RNA	=	ribonucleic acid
rpm	=	revolutions per minute
SD	=	standard deviation
SEM	=	scanning electron microscope
SPLV	=	stable plurilamellar vesicles
SUV	=	small unilamellar vesicles
$T_c$	=	phase transition temperature
TEM	=	transmission electron microscope
ULV	=	unilamellar vesicles

UV	=	ultraviolet
v/v	=	volume by volume
w/v	=	weight by volume
w/w	=	weight by weight
%	=	percent
<	=	less than
>	=	greater than
≤	=	less than or equal to



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