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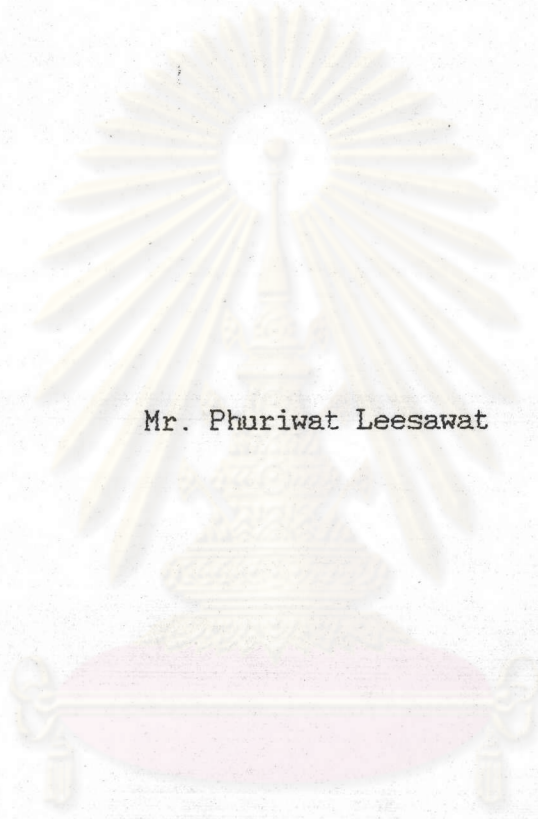
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CONTROLLED RELEASE THEOPHYLLINE MATRICES  
PREPARED FROM  
CO-SPRAY DRIED THEOPHYLLINE-POLYMER-CHANNELING AGENT



Mr. Phuriwat Leesawat

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ภริวัตน์ ลีสวัสดิ์ : ธีโอฟิลินเมทริกซ์ชนิดควบคุมการปลดปล่อย ซึ่งเตรียมจากโคสเปร์ย์ทราย  
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ศูนย์วิจัยเภสัชกรรม  
จุฬาลงกรณ์มหาวิทยาลัย

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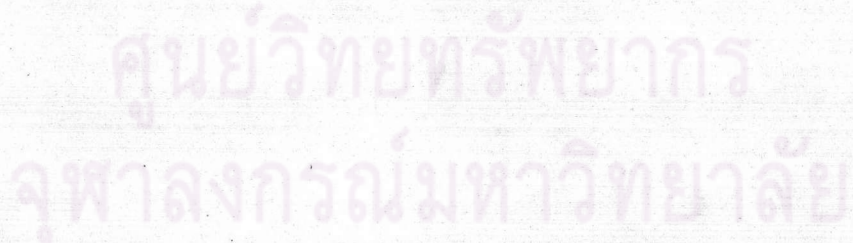
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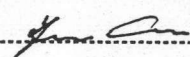
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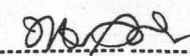
PHURIWAT LEESAWAT : CONTROLLED RELEASE THEOPHYLLINE MATRICES PREPARED FROM CO-SPRAY DRIED THEOPHYLLINE-POLYMER-CHANNELING AGENT. THESIS  
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Controlled release theophylline matrices containing various types and amounts of cellulose derivatives (ethylcellulose, hydroxypropylmethylcellulose, hydroxypropylmethylcellulose phthalate) and/or channeling agent (PVP K30, lactose) were prepared using spray drying technique. The types and amounts of matrix additives affected the condition of spray drying process and the physical properties of co-spray dried powders. The release characteristics of theophylline from the matrices were different in acid and alkali medium. The release rate decreased with an increase in the amount of cellulose polymers. Type of channeling agent appeared to exert more effect on the release rate while altering the amount of these additives played a lower effect on drug release. Those matrices containing 3% ethylcellulose and 25% lactose exhibited the most satisfactory release profiles. The release mechanisms and models of all prepared matrices were also assessed in comparison with the commercial products.



ภาควิชา เกษษัตริศาสตร์  
สาขาวิชา -  
ปีการศึกษา 2534

ลายมือชื่อนิสิต 

ลายมือชื่ออาจารย์ที่ปรึกษา 

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม .....

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## ABBREVIATIONS

°C	degree celsius
cm	centimeter
DTA	Differential Thermal Analysis
g	gram
hr	hour
HPMC	Hydroxypropyl Methylcellulose
HPMCP	Hydroxypropyl Methylcellulose Phthalate
HCl	Hydrochloric acid
IR	Infrared
kp	kilopound
kg	kilogram
L	liter
N	normal
NaOH	Sodium hydroxide
NH <sub>3</sub>	Ammonia
nm	nanometer
min	minute
ml	milliliter
mm	millimeter
mg	milligram
mcV	microvolt
bar	kg/cm <sup>2</sup>
PVP	Polyvinylpyrrolidone
rpm	revolution per minute



SD	standard deviation
UV	Ultraviolet
$\mu$	micro, micron
$\mu$ l	microliter
$\mu$ g	microgram



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