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The Production and Evaluations of Modified Rice Starch  
as Directly Compressible Diluent

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พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว


วลลภ วิชะรังสรรค์ : การผลิตและการประเมินผลแป้งข้าวเจ้าดัดแปลงสำหรับใช้เป็นสารเพิ่มปริมาณชนิดตอกโดยตรง (THE PRODUCTION AND EVALUATIONS OF MODIFIED RICE STARCH AS DIRECTLY COMPRESSIBLE DILUENT) อ.ที่ปรึกษา : ผศ.ดร.พจน์ กุลวานิช, 181 หน้า. ISBN 974-632-567-1

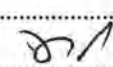
การนำแป้งข้าวเจ้ามาดัดแปลงทางเคมีและกายภาพ ให้มีคุณสมบัติเหมาะสมสำหรับใช้เป็นสารเพิ่มปริมาณในการผลิตยาเม็ดด้วยวิธีตอกโดยตรง และนำแป้งที่ผลิตได้มาประเมินผลเปรียบเทียบกับสารเพิ่มปริมาณชนิดตอกโดยตรงที่มีจำหน่ายในท้องตลาด คือ Era-tab<sup>R</sup>, Starch 1500<sup>R</sup>, Avicel PH 102<sup>R</sup> และ Emcompress<sup>R</sup> ในด้านคุณสมบัติทางกายภาพของผงสารและยาเม็ด ความสามารถในการตอกอัดเมื่อผสมกับตัวยาสำคัญ ศึกษาผลการเติมสารช่วยลื่นจำพวกแมกนีเซียม สเตียเรท (magnesium stearate) ต่อความแข็งและการแตกตัวของเม็ดยา แป้งข้าวเจ้าดัดแปลงที่ได้พัฒนาขึ้นนี้มีความสามารถในการตอกอัด (compressibility) สูงกว่า Era-tab<sup>R</sup>, Starch 1500<sup>R</sup> และ Emcompress<sup>R</sup> แต่ต่ำกว่า Avicel PH 102<sup>R</sup> เมื่อนำมาประเมินผลในการเป็นสารเพิ่มปริมาณชนิดตอกโดยตรงในสูตรตำรับยาเม็ด ซึ่งมีตัวยาสำคัญที่ละลายน้ำ คือ ไอโซไนอะไซด์ (isoniazid) และไม่ละลายน้ำ คือ ไฮโดรคลอโรไทอะไซด์ (hydrochlorothiazide) ยาเม็ดไอโซไนอะไซด์และไฮโดรคลอโรไทอะไซด์ที่เตรียมจากแป้งข้าวเจ้าดัดแปลงนี้ มีคุณสมบัติทางกายภาพได้ตามมาตรฐาน ทั้งความแข็ง ความกรอบ การแตกกระจายตัว และมีอัตราการละลายของตัวยา เข้ามาตรฐานตาม เกสซ์ตำรับ USP XXIII

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ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....

##C675205 : MAJOR MANUFACTURING PHARMACY  
KEY WORD: MODIFIED RICE STARCH/ SPRAY DRIED/ DIRECTLY COMPRESSIBLE DILUENT  
WANLOP WEECHARANGSAN : THE PRODUCTION AND EVALUATIONS OF MODIFIED  
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Modified rice starch was prepared by physico-chemical modification for the purpose to be employed as diluent for the preparation of tablets by direct compression. Modified rice starch was evaluated and compared with commercial directly compressible diluents such as Era-tab<sup>R</sup>, Starch 1500<sup>R</sup>, Avicel PH 102<sup>R</sup> and Emcompress<sup>R</sup>. These evaluated properties were physical properties of powders and tablets, the dilution potential ability as well as the effect of lubricant (magnesium stearate) on hardness and disintegration of tablets. The compressibility of developed modified rice starch was found to be higher than that of Era-tab<sup>R</sup>, Starch 1500<sup>R</sup> and Emcompress<sup>R</sup> but lower than that of Avicel PH 102<sup>R</sup>. Model formulations for direct compression tablets using isoniazid represented water soluble drug and hydrochlorothiazide represented water insoluble drug were presented. Both isoniazid tablets and hydrochlorothiazide tablets using modified rice starch as directly compressible diluent complied with USP XXIII specifications for hardness, friability, disintegration time and dissolution time.

ภาควิชา.....เภสัชอุตสาหกรรม.....

ลายมือชื่อนิสิต.....*Soor S*.....

สาขาวิชา.....-.....

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**ABBREVIATIONS**

bar	Kg/cm <sup>2</sup>
B.U.	Brabender Unit
°C	degree celsius
cm	centimeter
DSC	Differential Scanning Calorimetry
g	gram
HCl	Hydrochloric acid
hr	hour
kp (s)	kilopound (s)
lbs	pound (s)
MDRS	Modified Rice Starch
mg	milligram
min	minute
ml	milliliter
mm	millimeter
nm	nanometer
N	normal
NaOH	Sodium hydroxide
rpm	revolution per minute
SD	standard deviation
USP	The United States Pharmacopoeia
UV	ultraviolet
µm	micrometer
%	percent