

การศึกษาคุณสมบัติการเป็นสารช่วยแตกกระจายตัวในยาเม็ดของสารสกัดจากเปลือกทุเรียน

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาเภสัชศาสตรมหาบัณฑิต

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THE STUDY OF TABLET DISINTEGRATING PROPERTIES OF  
DURIAN RIND EXTRACTS.

Miss Ruedeegorn Kiatmonkong

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## พิมพ์ต้นฉบับบทความวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมเพียงแผ่นเดียว

ผู้คิด เกียรติมั่นคง : การศึกษาคุณสมบัติการเป็นสารช่วยแตกกระจายตัวในยาเม็ดของสารสกัดจากเปลือกทุเรียน (THE STUDY OF TABLET DISINTEGRATING PROPERTIES OF DURIAN RIND EXTRACTS) อ. ที่ปรึกษา : ดร. ไกรสิทธิ์ อัมพรายน, 163 หน้า

การศึกษาคุณสมบัติในการช่วยแตกกระจายตัวของสารสกัดจากเปลือกทุเรียนที่ได้จากการสกัดด้วยแอลกอฮอล์ ( $D_1$ ) และกรด-แอลกอฮอล์ ( $D_2$ ) โดยเปรียบเทียบกับสารช่วยแตกกระจายตัวที่ใช้กันอย่างแพร่หลาย ได้แก่ Ac-di-Sol<sup>(R)</sup>, corn starch, Explotab<sup>(R)</sup>, Kollidon CL<sup>(R)</sup>, Nymcel<sup>(R)</sup> และ Starch 1500<sup>(R)</sup>

การประเมินค่าคุณสมบัติทางกายภาพของสารช่วยแตกกระจายตัว เช่น ความสามารถในการอุ้มน้ำ (hydration capacity), การพองตัว (swelling), สภาพการให้น้ำแทรกซึม (water penetration) ผลของสารต่อเวลาในการแตกกระจายตัว (disintegration time) ของยาเม็ดที่ประกอบด้วยสารเพิ่มปริมาณชนิดละลายน้ำ ( $\alpha$ -lactose monohydrate) และ ชนิดไม่ละลายน้ำ (dibasic calcium phosphate dihydrate) ที่ตอกด้วยแรงตอก 3 ระดับ (500, 1000 และ 1500 กิโลกรัม) นอกจากนี้ยังวัดความสามารถในการเพิ่มอัตราการละลายของไฮโดรคอลลอยด์ไฮเอไซค์และไฟริคอกซีนไฮโดรคอลลอยด์ในสารเพิ่มปริมาณชนิดไม่ละลายน้ำด้วย

จากผลการทดลองแสดงอย่างชัดเจนว่า สารสกัดจากเปลือกทุเรียนทั้ง 2 รูปแบบเป็นสารช่วยแตกกระจายตัวที่มีประสิทธิภาพในยาเม็ดตอกโดยวิธีตรงที่ประกอบด้วยสารเพิ่มปริมาณทั้ง 2 ชนิด และแสดงคุณสมบัติในการช่วยแตกกระจายตัวที่ดีกว่า corn starch และ Starch 1500<sup>(R)</sup> ที่ระดับความเข้มข้นต่ำ อย่างไรก็ตาม คุณสมบัติเหล่านี้ยังด้อยกว่าพวกสารช่วยแตกกระจายตัวยิ่งยวด (superdisintegrants) เช่น Ac-di-Sol<sup>(R)</sup>, Explotab<sup>(R)</sup>, Kollidon CL<sup>(R)</sup> และ Nymcel<sup>(R)</sup>

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RUEDEEGORN KIATMONKONG : THE STUDY OF TABLET DISINTEGRATING PROPERTIES OF DURIAN RIND EXTRACTS. THESIS ADVISOR : LECTURER KAISRI UMPRAYN, Ph.D., 163 pp.

Durian rind extract from alcohol (D<sub>1</sub>) and acid-alcohol extraction (D<sub>2</sub>) were studied for their disintegration properties in comparison with commonly used disintegrants like Ac-di-Sol<sup>(R)</sup>, corn starch, Explotab<sup>(R)</sup>, Kollidon CL<sup>(R)</sup>, Nymcel<sup>(R)</sup> and Starch 1500<sup>(R)</sup>.

Physical properties of disintegrants such as hydration capacity, swelling, water penetration, action on the disintegration time of tablets containing water soluble ( $\alpha$ -lactose monohydrate) and water insoluble (dibasic calcium phosphate dihydrate) diluents compressed at three different compressional forces (500, 1000 and 1500 kg) were evaluated. In addition, the abilities to improve the dissolution rate of hydrochlorothiazide and pyridoxine hydrochloride in water insoluble diluent were also determined.

The results clearly showed that both forms of durian rind extract appeared to be an effective disintegrating agent in directly compressed tablets made with either diluent and exhibited superior disintegrating properties than corn starch and Starch 1500<sup>(R)</sup> at quite low concentration. However, these properties were inferior than those superdisintegrants such as Ac-di-Sol<sup>(R)</sup>, Explotab<sup>(R)</sup>, Kollidon CL<sup>(R)</sup>, and Nymcel<sup>(R)</sup>.

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