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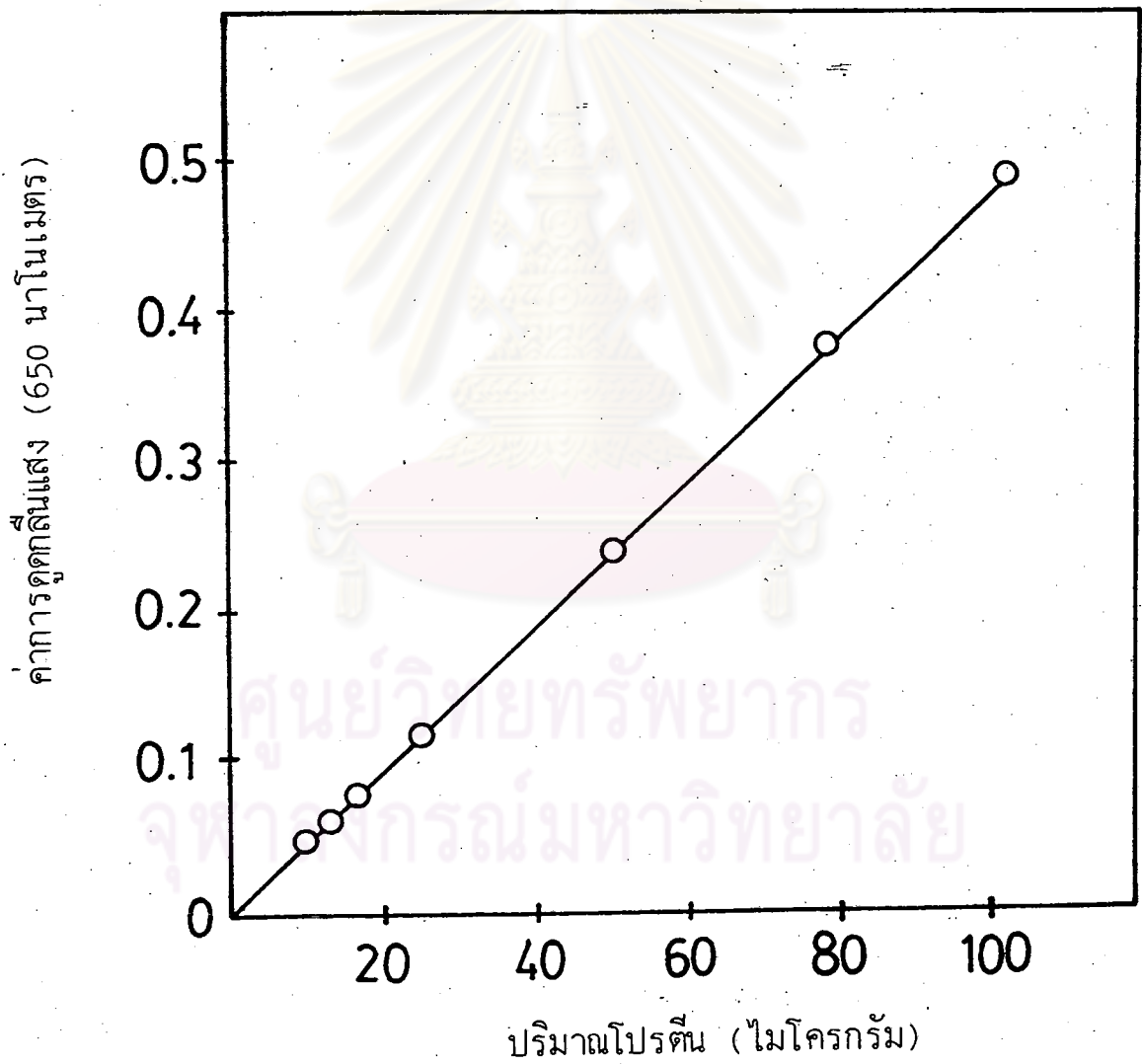
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จุฬาลงกรณ์มหาวิทยาลัย

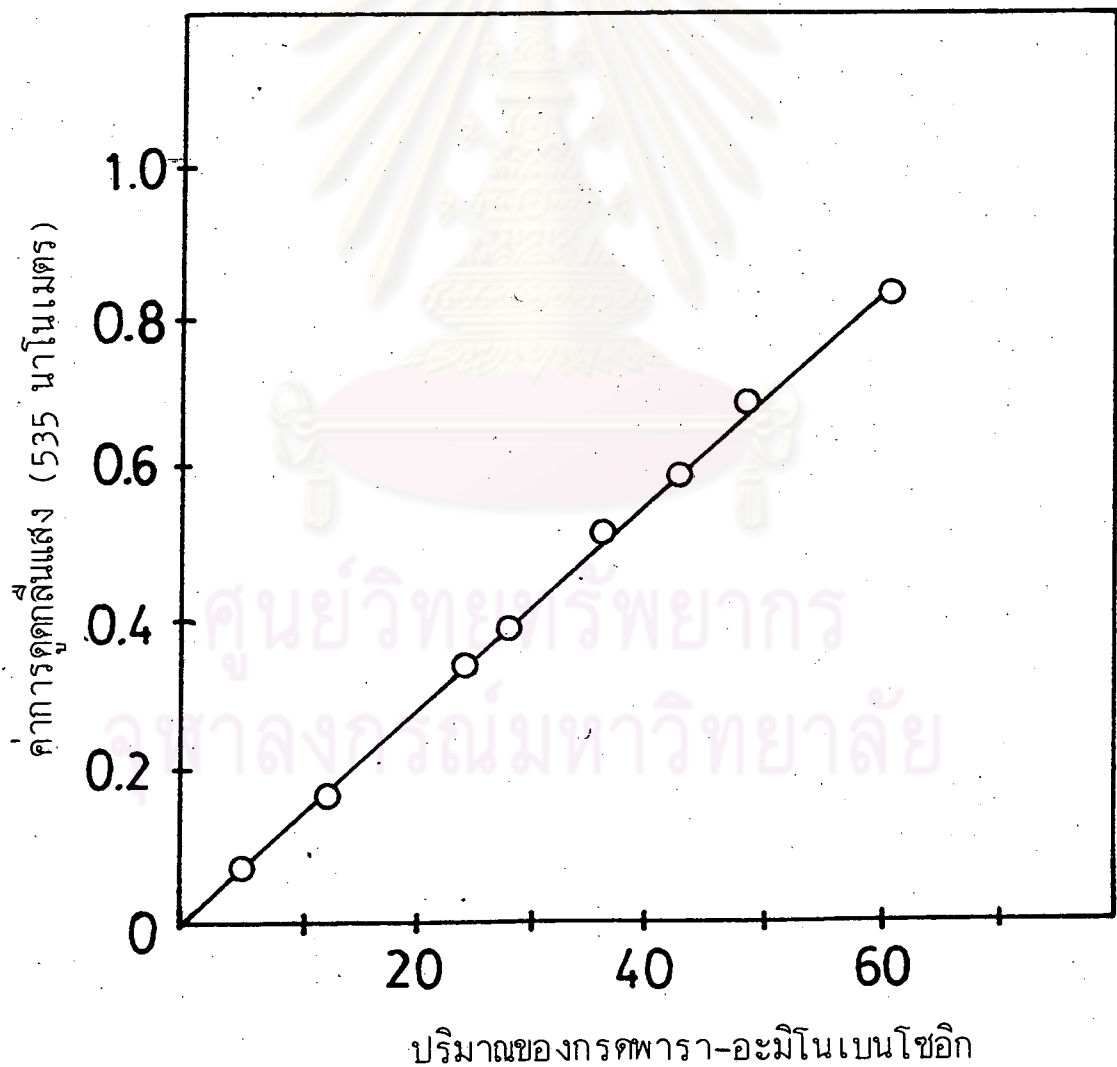
ภาคผนวกที่ 1 กราฟมาตรฐานสำหรับหาปริมาณโปรตีนโดยวิธีลอร์  
(Lowry และคณะ, 1951)



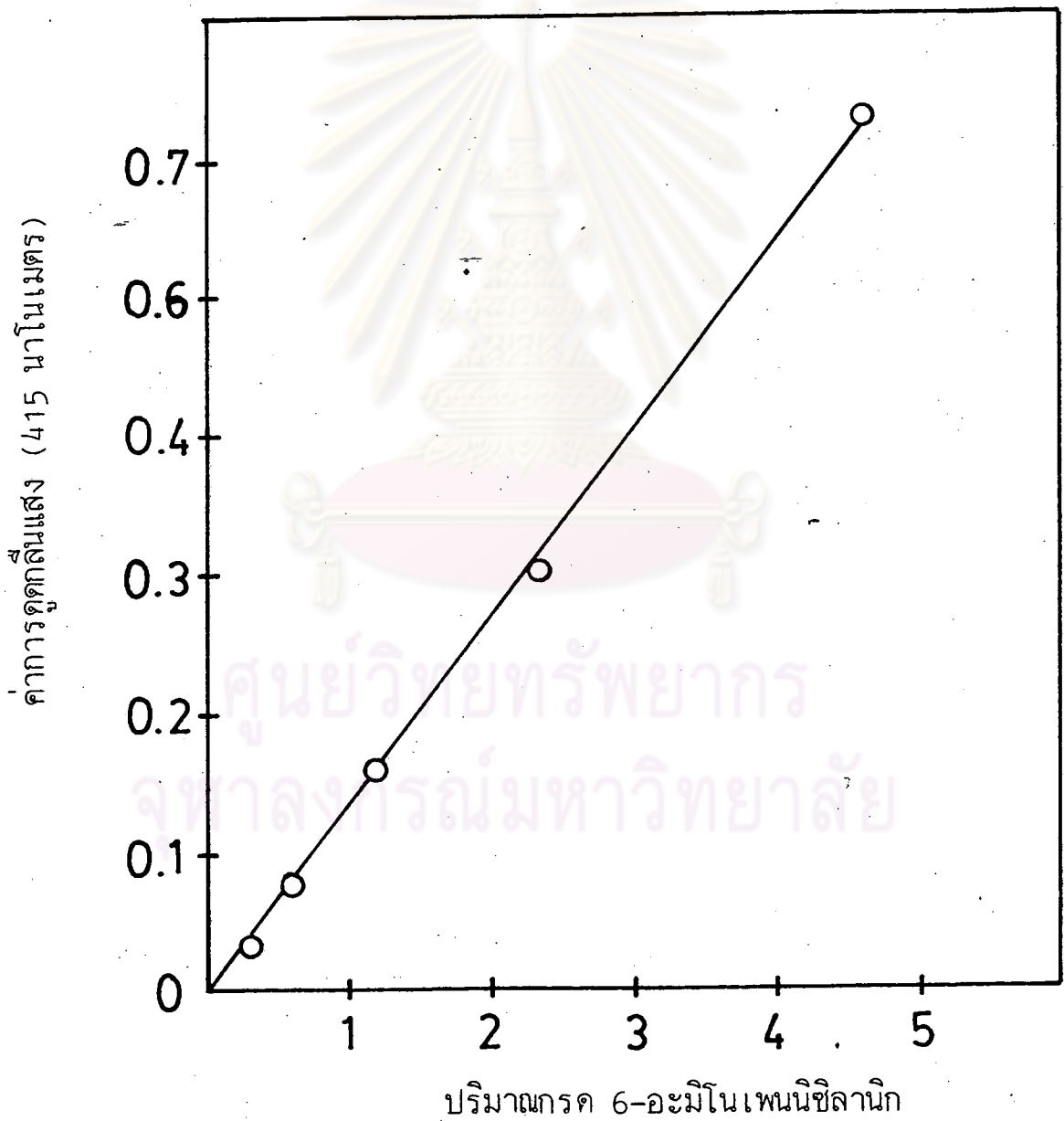


ภาคผนวกที่ 2

กราฟมาตรฐานสำหรับหาปริมาณกรดพารา-อะมิโนเบนโซอิก  
ซึ่งได้จากการวัดแอกติวิตีของเพนนิซิลิน เอซีเลส โดยวิธีของ  
Szewezuk และคณะ (Szewezuk และคณะ, 1980)



ภาคผนวกที่ 3 กราฟมาตรฐานสำหรับหาปริมาณกรด 6-อะมิโนเพนนิซิลานิก  
โดยวิธีของ Balasingham และคณะ (Balasingham  
และคณะ, 1972)



ภาคผนวกที่ 4 การวิเคราะห์แอกติวิตีของเบตา-แลกแทมเมส โดยวิธี Iodometric  
(Sykes และ Nordstrom, 1972)

คำนวณแอกติวิตีของเบตา-แลกแทมเมสโดยใช้สูตร

$$\left(\frac{\Delta OD}{\min}\right)_t = \left(\frac{\Delta OD}{\min}\right)_T - \left(\frac{\Delta OD}{\min}\right)_S - \left(\frac{\Delta OD}{\min}\right)_E$$

เมื่อ  $\left(\frac{\Delta OD}{\min}\right)_T$  คือ การลดลงของ OD<sub>620</sub> ต่อเวลาในช่วง 15 ถึง 20 นาที  
ของสารละลายปฏิกิริยา

$\left(\frac{\Delta OD}{\min}\right)_S$  คือ การลดลงของ OD<sub>620</sub> ต่อเวลาในช่วง 15 ถึง 20 นาที  
ของ

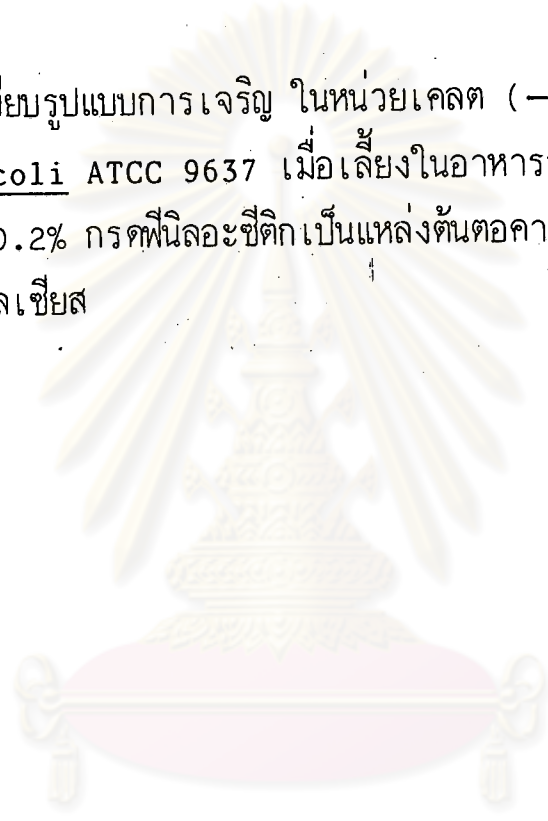
$\left(\frac{\Delta OD}{\min}\right)_E$  คือ การลดลงของ OD<sub>620</sub> ต่อเวลาในช่วง 15 ถึง 20 นาที  
ของ

โดยที่  $\left(\frac{\Delta OD}{\min}\right)_t = 0.04$  จะเท่ากับแอกติวิตีของเบตา-แลกแทมเมส 0.01 หน่วย

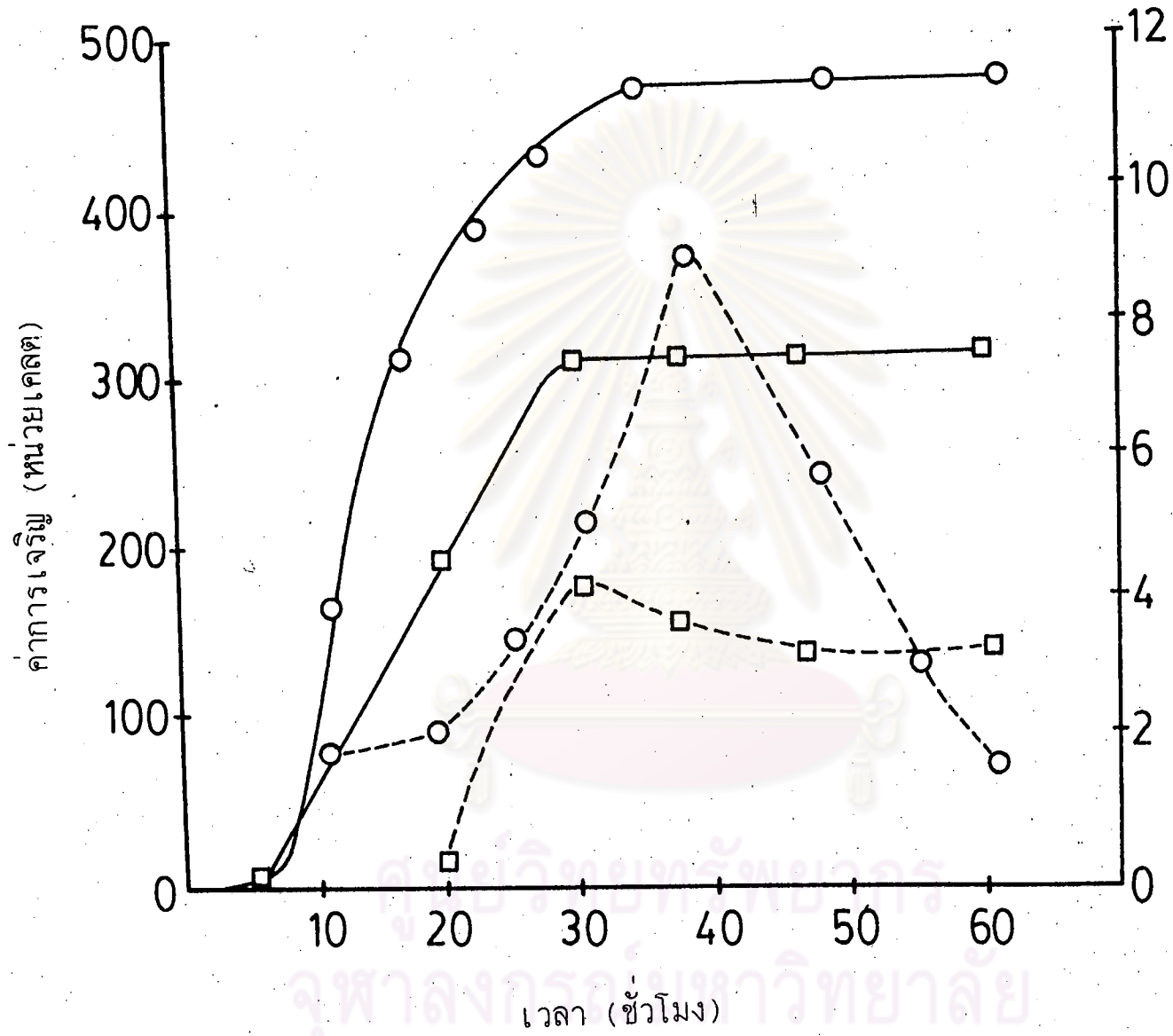
ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

ภาคผนวกที่ 5

เปรียบเทียบรูปแบบการเจริญ ในหน่วยเคลต (——) และจำนวนเซลล์ที่มีชีวิต (----) ของ E.coli ATCC 9637 เมื่อเลี้ยงในอาหารสูตรปรับต่ำชนิดธรรมดา (●) กับ ชนิดที่มี 0.2% กรดฟีนอลอะซีติกเป็นแหล่งต้นตอคาร์บอนอย่างเดียว (×) ที่อุณหภูมิ 30 องศาเซลเซียส



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย



ประวัติผู้เขียน

นางสาวจันทร์เพ็ญ เคชะอำไพ เกิดวันที่ 31 มีนาคม พ.ศ. 2502  
ได้รับปริญญาวิทยาศาสตรบัณฑิต จากมหาวิทยาลัยเชียงใหม่ เมื่อปีพ.ศ. 2524



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย