

ลายพิมพ์ดีเอ็นเอและปริมาณบีตา-แคโรทีนและเคอร์ซีทีนในสาหร่ายสีเขียวขนาดเล็ก

*Chlorella* spp. และ *Scenedesmus* spp.



นางสาวสุภัทรวนิช แสงดี

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DNA FINGERPRINTS AND  $\beta$ -CAROTENE AND QUERCETIN CONTENTS IN GREEN  
MICRO-ALGAE *Chlorella* spp. AND *Scenedesmus* spp.

Miss Supatarawanit Sawangdee

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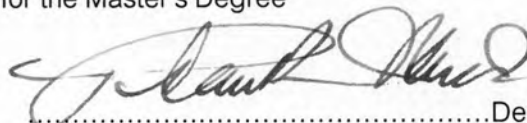
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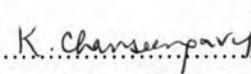
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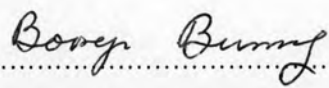
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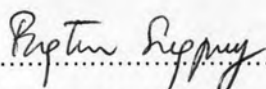
  
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สุภัทรวณิช แสงวงศ์ : ลายพิมพ์ดีเอ็นเอและปริมาณบีตา-แคโรทีนและเคอร์ซีทีนในสาหร่ายสีเขียวขนาดเล็ก *Chlorella* spp. และ *Scenedesmus* spp. (DNA FINGERPRINTS AND  $\beta$ -CAROTENE AND QUERCETIN CONTENTS IN GREEN MICRO-ALGAE *Chlorella* spp. AND *Scenedesmus* spp.) อ. ที่ปรึกษา: รศ.ดร.กาญจนา ขาญสง่าเวช, 68 หน้า ISBN 974-14-2604-6

ในงานวิจัยนี้ได้วิเคราะห์ปริมาณสารต้านอนุมูลอิสระ บีตา-แคโรทีน และ เคอร์ซีทีนที่มีในเซลล์ระยะมิตอติคของ *Chlorella* spp. และ *Scenedesmus* spp. โดยแยกได้เชื้อบริสุทธิ์ของ *Chlorella* spp. SS1, SS8 และ *Scenedesmus* spp. SS4, SS5 และ SS9 สาหร่ายสีเขียวเหล่านี้ต่างสายพันธุ์เพราะมีลายพิมพ์ดีเอ็นเอที่หาโดยวิธี PCR โดยใช้ CRL-7 หรือ 27f หรือ 1492r เป็นไพรเมอร์ต่างกัน ผลการหาปริมาณบีตา-แคโรทีนโดยวิธี reversed-phase HPLC พบปริมาณบีตา-แคโรทีนในสาหร่ายสีเขียวขนาดเล็กเหล่านี้ในช่วง 290-4,590 ไมโครกรัมต่อกรัมน้ำหนักเซลล์แห้งโดย *Chlorella* spp. มีปริมาณบีตา-แคโรทีน 2,750-4,590 ไมโครกรัมต่อกรัมน้ำหนักเซลล์แห้ง มากกว่า *Scenedesmus* spp. ซึ่งตรวจพบปริมาณบีตา-แคโรทีน 290-450 ไมโครกรัมต่อกรัมน้ำหนักเซลล์แห้ง ผลการทดลองพบว่า *Chlorella* spp. มีปริมาณบีตา-แคโรทีนใกล้เคียงกับที่มีรายงานในการตรวจเอกสาร ทั้งนี้ผลการทดลองตรวจไม่พบ Quercetin ในสาหร่ายเหล่านี้ภายใต้สภาวะทดลองที่ใช้

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*Scenedesmus* spp. SUPATARAWANIT SAWANGDEE: DNA FINGERPRINTS AND  $\beta$ -CAROTENE AND QUERCETIN CONTENTS IN GREEN MICRO-ALGAE *Chlorella* spp. AND *Scenedesmus* spp. THESIS ADVISOR: Associate Professor Kanjana Chansangavej, Ph.D.; 68 p. ISBN 974-14-2604-6

In this research, contents of the antioxidants,  $\beta$ -carotene and Quercetin, in mid-log phase cells of *Chlorella* spp. and *Scenedesmus* spp. were determined. Pure cultures of *Chlorella* spp. SS1, SS8, *Scenedesmus* spp. SS4, SS5, and SS9 were obtained. They were identified as different strains based on distinct PCR fingerprints obtained by using either primer CRL-7 or 27f or 1492r.  $\beta$ -carotene contents were determined by reversed-phase HPLC to be in the range of 290-4,590  $\mu\text{g}\cdot\text{g}^{-1}$  cell dry weight. *Chlorella* spp. were found to contain  $\beta$ -carotene 2,750-4,590  $\mu\text{g}\cdot\text{g}^{-1}$  cell dry weight which were more than *Scenedesmus* spp. which were found to contain  $\beta$ -carotene 290-450  $\mu\text{g}\cdot\text{g}^{-1}$  dry cell weight.  $\beta$ -carotene contents in *Chlorella* spp. were found to be comparable to those reported in literature. No Quercetin was detected in the green micro-algae under the experimental conditions.

Department                      Microbiology

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