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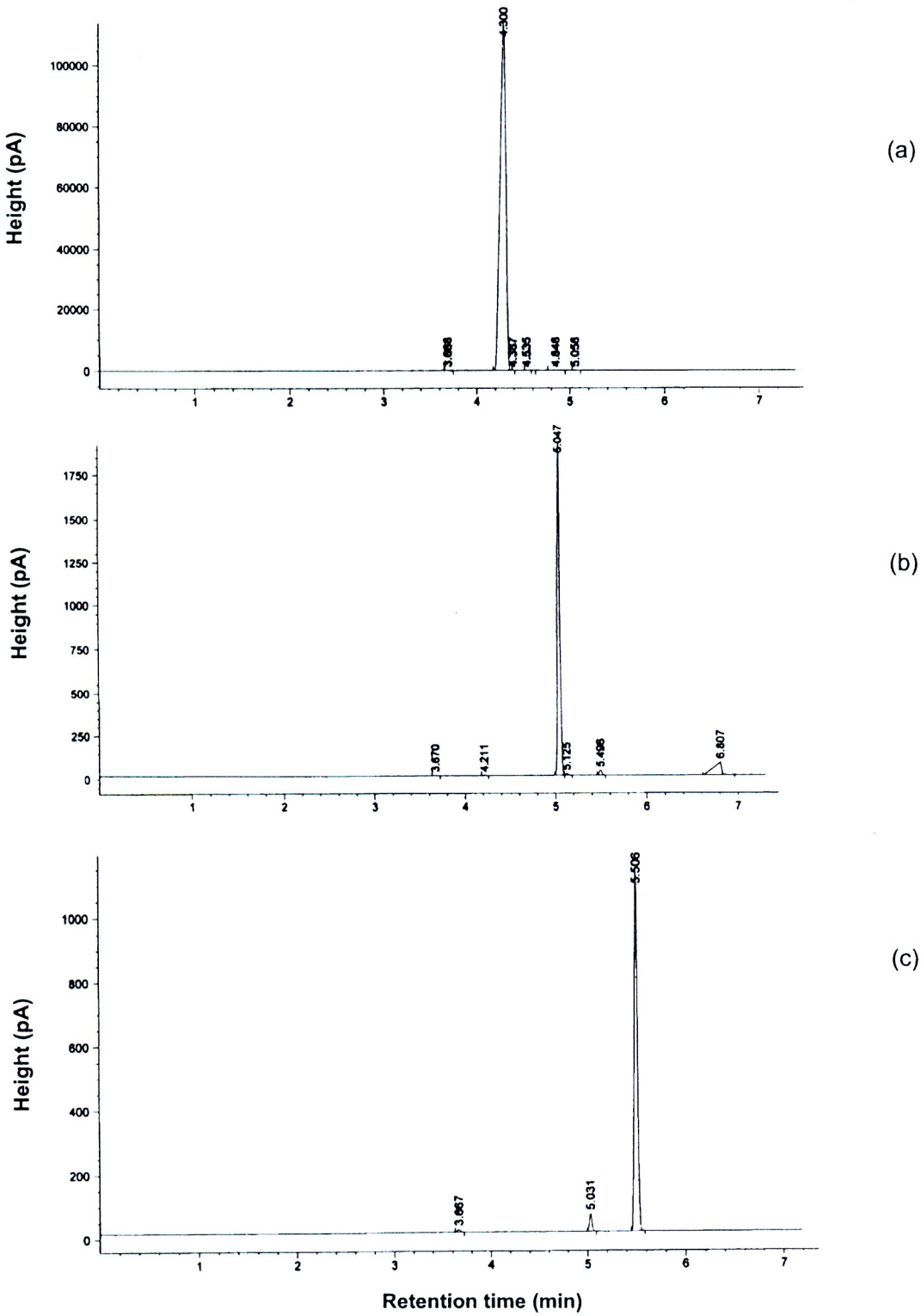
ภาคผนวก

ก. 1 การวิเคราะห์ผลิตภัณฑ์จากปฏิกิริยาออกซิเดชันของโทลูอีนด้วย GC



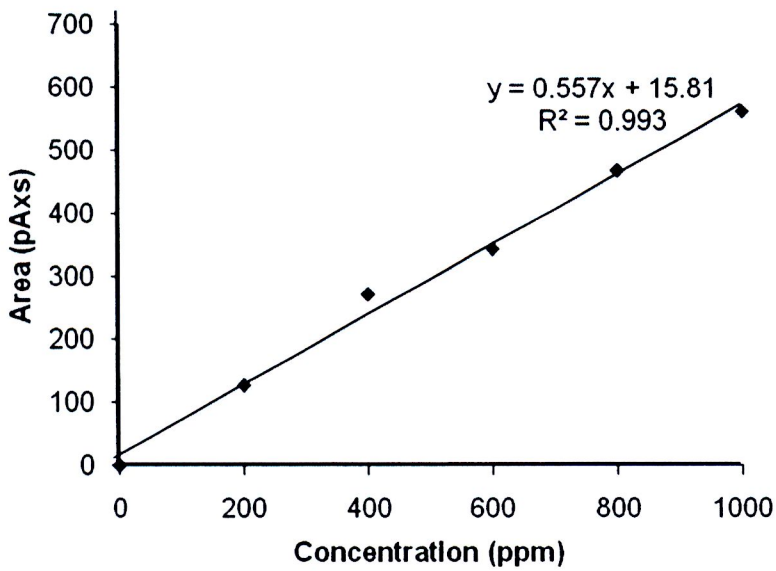
รูปที่ ผ.1 GC โครมาโทแกรมของ (a) Toluene (b) Benzaldehyde และ (c) Benzyl alcohol ที่วิเคราะห์ด้วยเครื่อง GC

ตารางที่ ผ.1 Retention time ของสารมาตรฐาน Toluene, Benzaldehyde, และ Benzyl alcohol เมื่อวิเคราะห์ผลด้วย GC

สาร	Retention time (min)	
	GC	HPLC
Toluene	4.300	7.432
Benzaldehyde	5.047	9.810
Benzyl alcohol	5.506	5.892

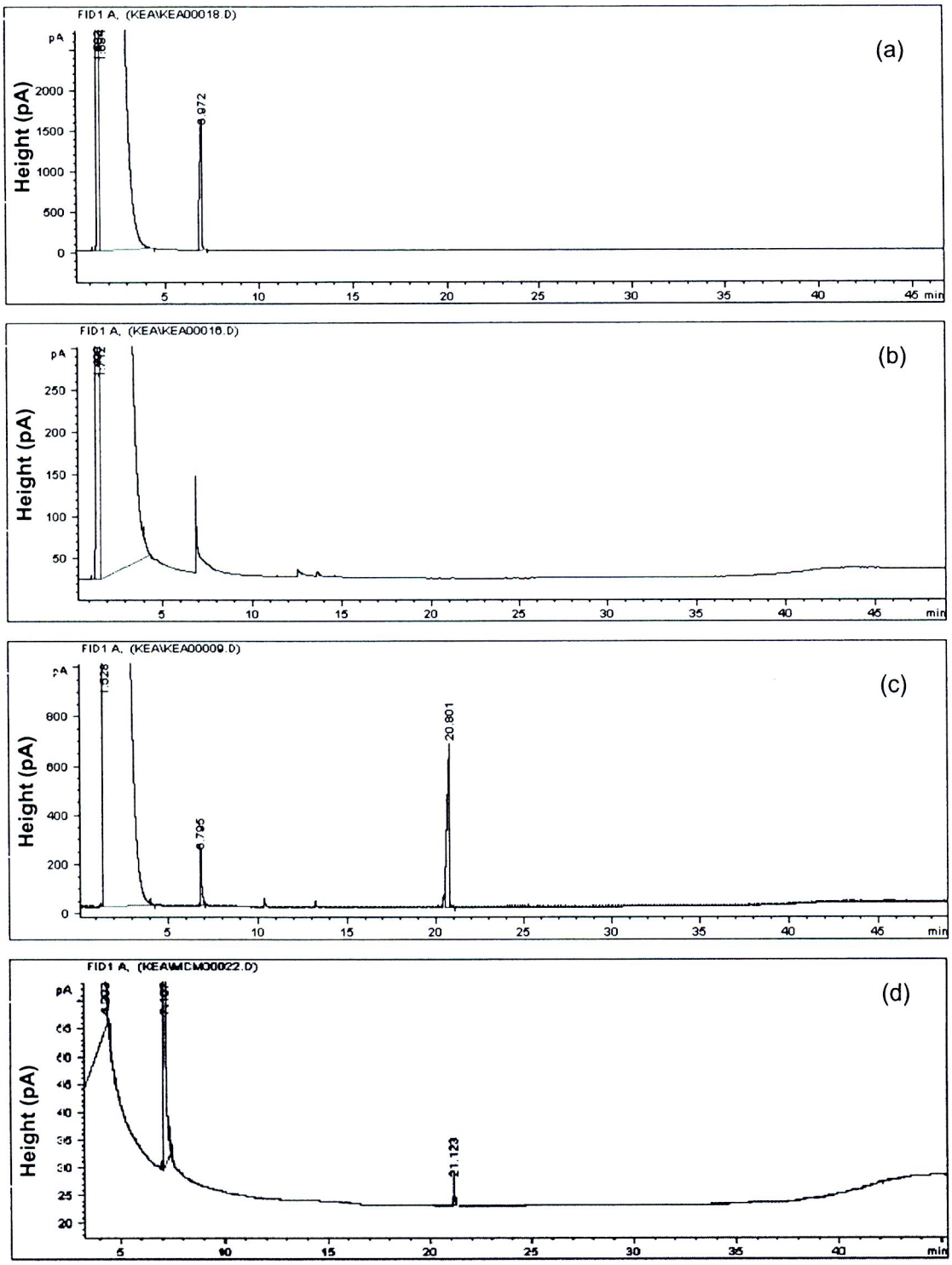
ตารางที่ ผ.2 ข้อมูลพื้นที่ใต้กราฟของสารละลายมาตรฐานโทลูอีนที่ความเข้มข้นต่างๆ

Concentration (ppm)	0	200	400	600	800	1000
Peak Area (pA×s)	0	126	271	342	467	562



รูปที่ ผ.2 กราฟมาตรฐานของสารมาตรฐานโทลูอีน

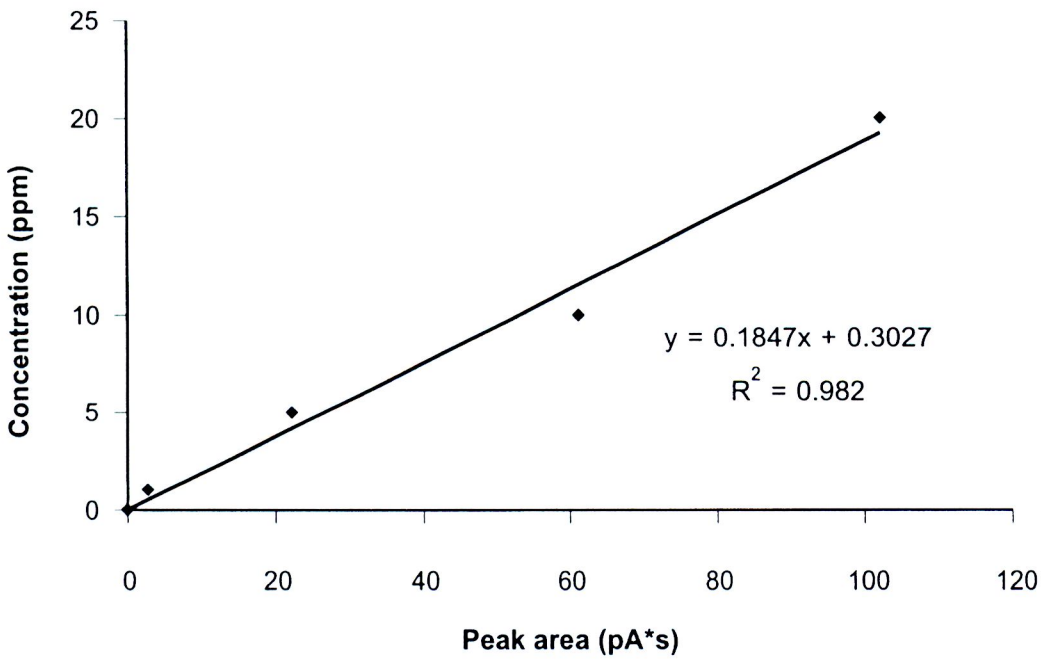
ก. 2 การวิเคราะห์ผลิตภัณฑ์จากปฏิกิริยาระหว่าง phenol และ salicylic acid ด้วย GC



รูปที่ ผ.3 โครมาโทแกรมของ (a) phenol, 500 ppm, (b) salicylic acid, 500 ppm (c) phenyl salicylate, 500 ppm และ (d) phenyl salicylate ที่ได้จากปฏิกิริยาการเกิดเอสเทอร์ระหว่าง phenol และ salicylic acid ที่ความเข้มข้น 100 ppm ที่ 150-160 °C, 8 ชั่วโมง

ตารางที่ ผ.3 Retention time ของสารมาตรฐาน phenol, palicylic acid และ phenyl salicylate เมื่อวิเคราะห์ผลด้วย GC

สารมาตรฐาน	Retention time (min)
Phenol	6.972
Salicylic acid	6.848
Phenyl salicylate	6.795 และ 20.81

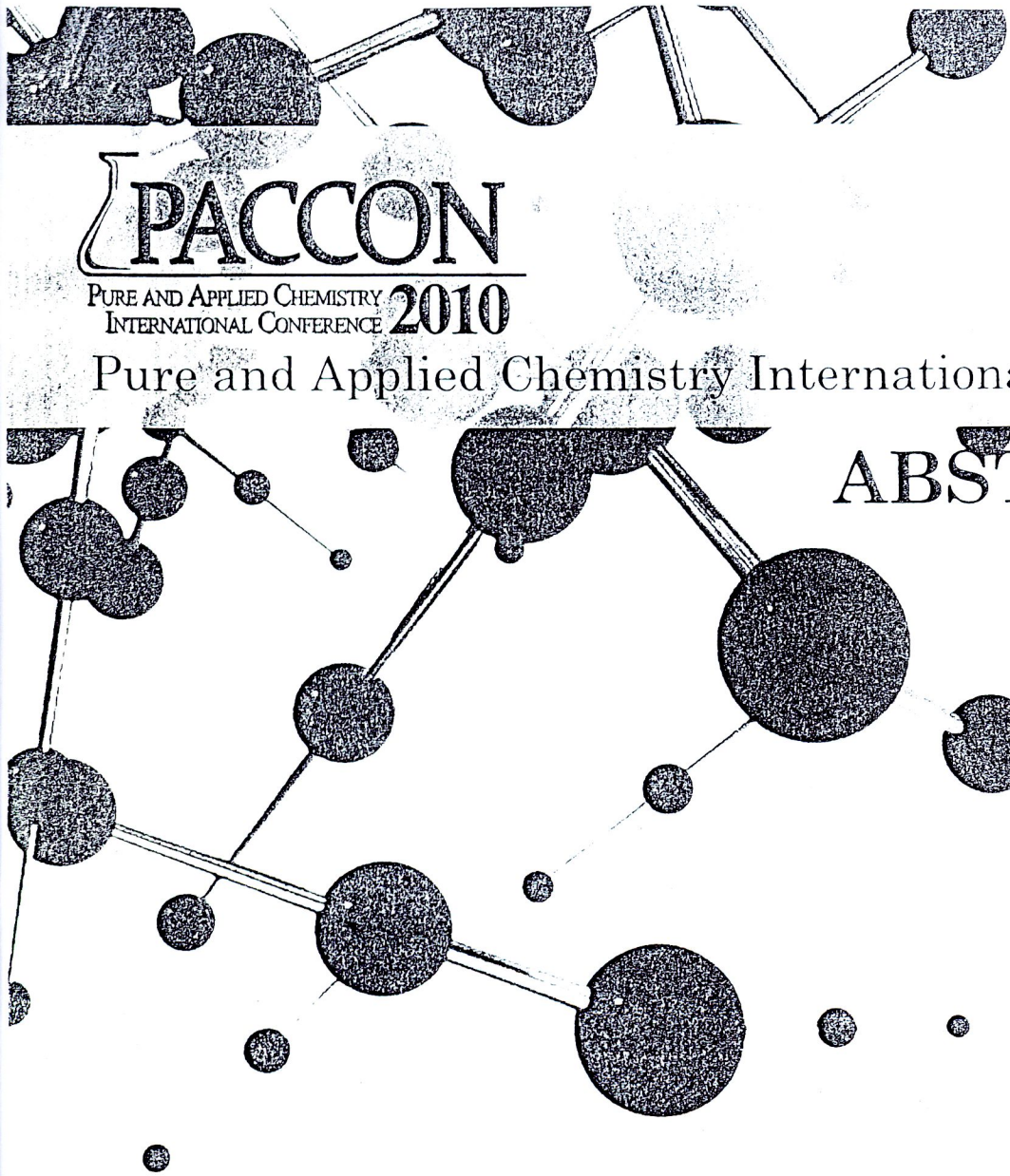


รูปที่ ผ.4 กราฟมาตรฐานของสารมาตรฐาน phenyl salicylate

ก. 3 การเผยแพร่ผลงานวิจัย

(1) นำเสนอผลงานบางส่วนของงานวิจัยแบบโปสเตอร์ในงานประชุมวิชาการ Pure and Applied Chemistry International Conference (PACCON2010) ในวันที่ 21-23 มกราคม 2553 ณ จังหวัดอุบลราชธานี

(2) ส่งตีพิมพ์ 1 เรื่องใน Material Letters (Submitted date: 6 May, 2011, Accepted date: 19 November, 2011)



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Synthesis and characterization of nickel supported on mesoporous alumina prepared from aluminium scrap

Saowapa Chotisuwan,[1*] Apichat Sirirak[1] and Jatuporn Wittayakun[2]

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Highly surface area mesoporous aluminas were prepared by sol-gel method from aluminium isopropoxide (AIP) synthesized by the reaction between aluminium scrap and isopropanol. The sol-gel method was performed at 30-80 °C for 24 to 48 h, then aluminium hydroxide gel was filtered and dried. The calcination was carried out at 500 °C for 2 h. Calcined mesoporous aluminas were characterized by scanning electron microscopy (SEM), infrared spectroscopy (IR), X-ray diffraction spectroscopy (XRD), and N_2 physisorption. The BET specific surface areas of γ phase mesoporous aluminas obtained from synthesized AIP were 427-483 $m^2 g^{-1}$ with median pore diameters 16-18 nm. Mesoporous γ-alumina synthesized under aging temperature of 30 °C for 48 h, was then impregnated with nickel(II) nitrate solution to prepared nickel supported on mesoporous alumina catalyst, and characterized by X-ray absorption spectroscopy.

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