

การวิเคราะห์สารเฮโลจิเนเตออัลเคน
โดยวิธีการสกัดระบบจุลภาค



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ANALYSIS OF HALOGENATED ALKANES BY
MICROEXTRACTION TECHNIQUE

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พิมพ์ต้นฉบับบทความวิจัยเกี่ยวกับวิทยาศาสตร์ในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว



กฤตยา สุ่มพรหมพงศ์ : การวิเคราะห์สารเฮโลจิเนเตดอัลเคนโดยวิธีการสกัดระบบจุลภาค (ANALYSIS OF HALOGENATED ALKANES BY MICROEXTRACTION TECHNIQUE)

อ. ที่ปรึกษา : ดร.สิทธิชัย สิริพัฒน์ไพฑูริย์, 201 หน้า

ในการวิจัยนี้ได้ศึกษาการสกัดระบบจุลภาคของสารเฮโลจิเนเตดอัลเคน ได้แก่ เมทิลีน-คลอไรด์ คลอโรฟอร์ม 1,1,1-ไตรคลอโรอีเทน คาร์บอนเตตระคลอไรด์ และ 1,2-ไดคลอโรโพรเพน ในตัวทำละลายอินทรีย์ และการวัดปริมาณ โดยเครื่องมือแก๊สโครมาโทกราฟีที่มีอิเล็กทรอนิกส์เป็นดีเทคเตอร์ การศึกษาอิทธิพลต่าง ๆ ที่มีผลกระทบต่อประสิทธิภาพของการสกัด ได้แก่ อัตราส่วนปริมาตรของสารละลายตัวอย่างต่อปริมาตรของตัวทำละลายอินทรีย์ คือ ที่อัตราส่วน 9:1, 5:5 และ 2:8, ชนิดของตัวทำละลายอินทรีย์ คือ เฮกเซน ไชโคลเฮกเซน และไอโซออกเทน และการชอล์ตติ้งเอาท์ (salting out) ด้วยเกลือโซเดียมคลอไรด์ และเกลือโซเดียมซัลเฟต ประสิทธิภาพของการสกัดของสารเฮโลจิเนเตดอัลเคนที่ศึกษาอยู่ในช่วง 31.05-101.46%, 44.14-106.04% และ 67.28-107.99% และค่าเบี่ยงเบนมาตรฐานสัมพัทธ์อยู่ในช่วง 0.16-8.25%, 0.11-10.76% และ 0.47-10.67% เมื่อใช้อัตราส่วนของปริมาตรสารละลายตัวอย่างต่อปริมาตรของตัวทำละลาย 9:1, 5:5 และ 2:8 ตามลำดับ สัดส่วนที่เหมาะสมที่สุดที่ใช้ในการสกัดระบบจุลภาค ของสารเฮโลจิเนเตดอัลเคนในน้ำคือ การใช้เกลือโซเดียมซัลเฟต 2.00 กรัม, อัตราส่วนปริมาตรของสารละลายตัวอย่างต่อปริมาตรของตัวทำละลายอินทรีย์ 9:1 และตัวทำละลายไอโซออกเทน ค่าความถูกต้องของวิธีการนี้ ได้จากการตรวจสอบสารละลายผสมของสารเฮโลจิเนเตดอัลเคน ที่ทราบค่าความเข้มข้นแน่นอน และพบว่าเปอร์เซ็นต์ของความผิดพลาดอยู่ในช่วง 1.00-5.46% นอกจากนี้ได้มีการเก็บตัวอย่างน้ำจากแหล่งต่าง ๆ และวิเคราะห์ด้วยวิธีการสกัดระบบจุลภาค ปริมาณของสารเฮโลจิเนเตดอัลเคนที่ต่ำที่สุดที่สามารถวัดปริมาณได้ อยู่ในช่วง 0.01-150.00 พีพีบี (ppb).

ภาควิชาเคมี.....
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ปีการศึกษา2531.....

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