

การวิเคราะห์มีเบนตาโซลโดยใช้ปฏิกิริยาเคมีของหมู่คาร์บอนีลกับ  
2,4-ไดไนโตรเฟนนิลไฮดราซีน



นางสาวศิริพร สุภกาญจนกันติ

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาโท สาขาวิทยาศาสตร์มหาบัณฑิต

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ASSAY OF MEBENDAZOLE BY USING THE REACTION OF  
CARBONYL GROUP AND 2,4-DINITROPHENYLHYDRAZINE

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หัวข้อวิทยานิพนธ์	การวิเคราะห์มีเบนดาโซลโดยใช้ปฏิกิริยาเคมีของหมู่คาร์บอนิลกับ 2,4-ไดไนโตรเพนีสไฮดราซีน
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บทคัดย่อ

2,4-ไดไนโตรเพนีสไฮดราซีน (2,4-dinitrophenylhydrazine) ทำปฏิกิริยากับหมู่คาร์บอนิลของสารประกอบคีโตนได้ตะกอนสีส้มของอนุพันธ์ 2,4-ไดไนโตรเพนีสไฮดราโซน (2,4-dinitrophenylhydrazone derivative) ซึ่งไม่ละลายน้ำ จึงนำปฏิกิริยานี้มาดัดแปลงให้เหมาะสมสำหรับใช้วิเคราะห์มีเบนดาโซล (mebendazole) ในเชิงปริมาณโดยวิธี visible spectrometry และทำการพิสูจน์เอกลักษณ์ของอนุพันธ์ 2,4-ไดไนโตรเพนีสไฮดราโซนที่ได้โดยวิธี thin layer chromatography, ultraviolet-visible spectrometry, infrared spectrometry,  $H^1$ -nuclear magnetic resonance spectrometry และ mass spectrometry นอกจากนี้ยังได้ศึกษาถึงสภาวะต่าง ๆ ที่มีผลต่อปฏิกิริยา จากการวิเคราะห์หาปริมาณมีเบนดาโซลในยาเม็ดจากบริษัทต่าง ๆ โดยวิธีนี้ให้ผลเป็นที่น่าเชื่อถือได้ เมื่อเปรียบเทียบกับวิธีมาตรฐานของ USP XXI



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#### ABSTRACT

The reaction of 2,4-dinitrophenylhydrazine (2,4-DNPH) and ketone yields an orange precipitate of 2,4-dinitrophenylhydrazone (2,4-DNPH'zone) derivative which is insoluble in water, and it was developed in order to assay mebendazole by visible-spectrometric method. The 2,4-DNPH'zone derivative obtained was identified by thin layer chromatography, ultraviolet-visible spectrometry, infrared spectrometry,  $H^1$ -nuclear magnetic resonance spectrometry and mass spectrometry. The various conditions affecting the reaction were examined. It was shown that mebendazole in tablets could be assayed with a good result by 2,4-DNPH method comparable to the official method that prescribed in USP XXI.



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