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**DEVELOPMENT OF STAR-SHAPED BENZOXAZINE
SUPRAMOLECULE**

Choltirosn Sutapin

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By: Choltirosn Sutapin
Program: Polymer Science
Thesis Advisors: Prof. Suwabun Chirachanchai

Accepted by The Petroleum and Petrochemical College, Chulalongkorn University, in partial fulfilment of the requirements for the Degree of Master of Science.



.....
(Asst. Prof. Pomthong Malakul)

College Dean

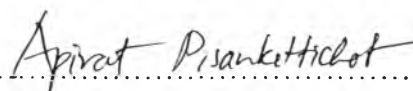
Thesis Committee:



.....
(Prof. Suwabun Chirachanchai)



.....
(Asst. Prof. Thanyalak Chaisuwan)



.....
(Asst. Prof. Apirat Pisankittichot)

ABSTRACT

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Keywords: Star-shaped/ Benzoxazine/ Substitution reaction/ Tosylated compound

Synthesis of star-shaped structure with four-arm benzoxazine dimers through the reaction between tetra-tosylated pentaerythritol as a core molecule and benzoxazine dimers as arm molecules is focused. A model reaction of phenol with core molecule suggests that the reaction for four-arm substitution is prohibited, and only two-arm star product substituted with phenols was obtained. In case of the reactions between benzoxazine dimers and core molecule, surprisingly, it does not give only two-arm star product, but also show the formation of cyclic benzoxazine dimers when the amount of case catalyst is excess. Furthermore, the mechanism related to this reaction was proposed as a model for substitution reaction of multi-tosylated core molecule and phenolic derivatives.

บทคัดย่อ

ชลธิรศน์ สุเทพิน : การพัฒนาซูปร้าโมเลกุลเบนซอกซาซีนรูปร่างดาว (Development of star-shaped benzoxazine supramolecule) อ. ที่ปรึกษา : ศาสตราจารย์ ดร.สุวบุญ จิระกาญช์ 35 หน้า

งานวิจัยนี้นำเสนอ โครงสร้างรูปดาวแบบสี่แขนจากโมเลกุลเบนซอกซาซีนไดเมอร์โดยการสังเคราะห์ผ่านปฏิกิริยาระหว่างโมเลกุลแกนเพนตะอิริทริทอลและโมเลกุลเบนซอกซาซีนไดเมอร์ จากปฏิกิริยาดันแบบของฟินอลกับโมเลกุลแกนพบว่าปฏิกิริยาไม่สามารถทำให้เกิดเป็นโครงสร้างแบบสี่แขนได้ หากแต่ผลิตภัณฑ์ที่ปรากฏเป็นเพียงโครงสร้างรูปดาวแบบสองแขนของฟินอลเท่านั้น สำหรับกรณีของปฏิกิริยาระหว่างเบนซอกซาซีนไดเมอร์และโมเลกุลแกนไม่เพียงแต่จะได้โครงสร้างรูปดาวแบบสองแขน แต่ยังแสดงการเกิดวงแหวนเบนซอกซาซีนไดเมอร์เมื่อเติมเบสในปริมาณที่มากเกิดพอ นอกจากนี้ในงานวิจัยยังนำเสนอกลไกการเกิดปฏิกิริยาที่เกี่ยวข้องเพื่อใช้เป็นต้นแบบสำหรับปฏิกิริยาแทนที่ของโมเลกุลแกนที่มีหมู่โทซิลหลายๆหมู่และอนุพันธ์ฟินอลต่อไป

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