

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال تعالى :

وَيَسْأَلُ لُوذَكَعَن الرُّوحِ قُلِّ الرُّوحِ مِنْ مَّرِّ رَبِّيَ مَا
أُوتَيْتُمْ لَهُ لَمِ إِلَّا قَلِيلًا وَلا يُشِذُّنَّا هَبْنِ بِاللَّيِّ حَيْنًا
(...

صدق الله العظيم

سوره الإسراء: الآيه (85)

DEDICATION

I dedicate this work to

The soul of my parents ...

To my sisters & brothers ...

And to those whom I Love ...

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Praise is to **Allah** the Almighty, who gave them the strength, health and patience to accomplish this work.

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ABSTRACT

In this study, different types of ferrites were prepared using a co-precipitation method. The synthesized ferrites include zinc ferrite (Zn-Fer), nickel ferrite (Ni-Fer), calcium ferrite (Ca-Fer), barium ferrite (Ba-Fer) and iron ferrite (Fe-Fer). These ferrites were characterized by FT-IR spectroscopy. The prepared ferrites were used to catalyze the Friedel-Crafts benzylation reaction of p-xylene (p-Xyl) using benzylchloride (BC) as benzylating agent. The liquid phase reaction was conducted at about 90 °C for 3 hours using p-Xyl/BC molar ratio of 15:1. The reaction products were detected by GC chromatograph equipped with FID detector. The ferrite samples were found to perform differently for the benzylation reaction of p-Xyl. Four ferrites i.e. (Fe-Fer), (Ca-Fer), (Ba-Fer) and (Ni-Fer) had given positive results and only zinc ferrite was found not active for this reaction. The formation of benzylated xylene products was explained by the electrophilic attack of benzyl cation on the xylene ring, whose formation is facilitated by the activity of the ferrite catalyst. The benzylation reaction was observed not to proceed in the absence of ferrite catalyst.

الخلاصة

في هذه الدراسة تم تحضير انواع مختلفة من أملاح الفرايت باستخدام طريقة الترسيب المشترك. وهذه الاملاح المحضرة تشمل: زنك فرايت, نيكل فرايت, كالبسيوم فرايت, باريوم فرايت, حديد فرايت. وتم تشخيصها بواسطة جهاز مطياف الأشعة تحت الحمراء (FT-IR). ومن ثم استخدمت هذه الأملاح المحضرة كحفازات في تفاعل فرايدل كرافت في الوسط السائل لبنزلة الأكسايلين باستخدام كلوريد البنزاييل كدليل بنزاييلي. وتم اجراء التفاعل في درجة حرارة حوالي 90 درجة مئوية لمدة ثلاثة ساعات باستخدام الاكسايلين الى كلوريد البنزاييل بنسب مولية (15:1), نواتج التفاعل تم تحليلها باستخدام جهاز كروماتوجرافيا الغاز المزود بمكشاف التاين اللهبى.

ووجد أن اداء عينات الفرايت لتفاعل بنزلة الاكسايلين مختلف . في حالات الحفازات الاربعه : الحديد فرايت, الكالسيوم فرايت, الباريوم فرايت والنيكل فرايت أعطت نتيجة ايجابية و الزنك فرايت فقط وجد انه غير فعال لهذا التفاعل ووجد أن تكون نواتج البنزاييل أكسايلين هي التي توضح هجوم الموجبية للإلكترونات من كاتيون البنزاييل على حلقة الاكسايلين، الى يتم تسهيلها بنشاط الفرايت المحفز كما لوحظ ان تفاعل البنزله لا يتم فى غياب حفازات الفرايت.

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