

الآية

قال تعالى :

[illegible]

[114 : طه]

Dedication

To my family.

To my friends.

Aknowlegement

All thanks to Almighty allah the sustainer of the universes.

Iwould like to express my gratitude to my supervisor Dr. Adil

Elhag Ahmed for standing next to me during this study to

carry out this work.

My gratuities are also to college of foresty and range for

their helping.

Iwould like to thanks my family who have supported and

encourage me.

Abstract

This work reports a method to utilize corncobs waste for the preparation of sodium carboxymethylcellulose (CMC) and its characteristic. The corncobs waste was cleaned, dried and ground to pass 80 mesh screen. The cellulose was extracted using 8% NaOH at 100 °C for 3.5 h and then bleached using 5% NaOCl at 30 °C for 3h. The cellulose was alkalized using NaOH 50% at 25 °C for one hour. Amounts of monochloroacetic acid (NaMCA) (3, 5, 7 g) were added per 5g cellulose and the temperature was adjusted at particular temperature (45 °C, 55 °C or 65 °C). CMC of the highest degree of substitution (DS) was obtained using 5g monochloroacetic acid at 55°C. The as-synthesized CMC was characterized using FT-IR spectroscopy and XRD powder diffractometer and it was found isomorphous to the commercial CMC. Its aqueous solutions, however, exhibited lower viscosities than the respective solutions of commercial CMC.

الملخص

هذا البحث يوضح طريقة استخدام مخلفات سنابل الذرة الشامية في تحضير مادة كربوكسي ميثيل السليلوز باستخدام هيدروكسيد الصوديوم ذو التركيز 8% لمدة ساعة عند درجة حرارة 100 درجة مئوية لمدة ثلاث ساعات ونصف واضيف محلول هيبوكلوريد الصوديوم ذو التركيز 5% لمدة ثلاث ساعات عند درجة حرارة 30 درجة مئوية. تمت ألكلة السليلوز باستخدام محلول هيدروكسيد الصوديوم ذو التركيز 50% لمدة ساعة في درجة حرارة الغرفة. اضيفت كميات مختلفة من حمض الخليك أحادي الكلور وضبطت درجة الحرارة في (45, 55 أو 65) درجة مئوية لمدة ثلاث ساعات حتي تم الحصول علي أعلى استبدال عند استخدام 5 جرام من حمض الخليك أحادي الكلور في درجة حرارة 55 درجة مئوية. شخّصت مادة كربوكسي ميثيل السليلوز المحضرة بمطيافية الأشعة تحت الحمراء وجهاز حيود الأشعة السينية حيث وجدت أنها تشبه لحد كبير مادة كربوكسي ميثيل السليلوز التجارية ولكن المحلول المائي لمادة كربوكسي ميثيل السليلوز المخلفة أعطى لزوجة أقل من لزوجة المحلول المائي لمادة ميثيل السليلوز التجارية التي إستخدمت للمقارنة.

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