

## الآية

قال تعالى :

وَقُلْ اَعْمَلُوا فَسَيَرَى اللّٰهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ <sup>ط</sup> وَسُرُدُّونَ اِلَى اَعَالِمِ الْغَيْبِ وَالشَّهَادَةِ فَيُنَبِّئُكُمْ بِمَا كُنْتُمْ تَعْمَلُونَ

صدق الله العظيم

سورة التوبة الآية 105

# **Dedicating**

To my parents

To my Husband & Twins

To my Brothers & Sisters

# **Acknowledgement**

Praises and thanks to almighty Allah .

Special and deep thanks to my supervisor

Dr. Elfatih Ahmed Hassan , for his continues support and  
encouragement .

Would like to express my gratitude to all those who helped my during  
my work .

I would like to express my heart full gratitude to my father and husband  
for their financial support .

## **Abstract**

This study aims to explore utilization of the fruits of *Balanites aegyptiaca* tree , which is wide spread in Sudan , in production of activated charcoal .

Also this study involved treatment of the produced charcoal with NaOH and test both the NaOH treated and un treated charcoal for their adsorption of the cation Pb , Zn and Cr by atomic absorption technique and conductivity measurement .

The result showed that charcoal was effective in adsorbing all the three cations from their solutions . lead ion was adsorbed by charcoal to greater extent compared to chromium and zinc .

Also the result showed that treated charcoal by sodium hydroxide possesses higher efficiency than untreated charcoal .

## المخلص

ركزت هذه الدراسة علي توضيح أهمية ثمرة اللالوب الواسعة الانتشار في ارض السودان ودورها الفعال في إنتاج الفحم المنشط .

حيث اشتملت علي إنتاج الفحم المنشط بحرق الخشب المحتواة في القشرة الخارجية لبذرة اللالوب كما تم معالجة جزء من الفحم المنتج بواسطة هيدروكسيد الصوديوم .

أيضا اشتملت الدراسة علي اختبار كفاءة خلال من الفحم المعالج وفير المعالج في امتصاص كاتيونات الرصاص والكروم والزنك وذلك بواسطة تقنية الامتصاص الذري وقياسات توصيلية المحاليل .

حيث أوضحت نتائج الامتصاص الذري إن نسبة امتصاص الفحم المنتج والمعالج لايون الرصاص اعلي من الزنك والكروم وذلك بسبب ارتفاع الوزن الذري للرصاص عن الايونين الآخرين .

كما أكدت النتائج أن الفحم المعالج بهيدروكسيد الصوديوم اعلي كفاءة في امتصاص الكاتيونات من الفحم غير المعالج .

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