# بسم الله الرحمن الرحيم


MONA MAGHRABY

# شبكة المعلومات الجامعية

# التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

# جامعة عين شمس

# التوثيق الإلكتروني والميكروفيلم

# قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

# يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

***MONA MAGHRABY***

كليه العلوم – قسم الكيمياء

# Removal of some chemical and microbial pollutants from wastewater via biochar/iron oxide nano-composite


By

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B.Sc. (Chemistry) 2004

M.Sc. (Chemistry) 2011


**For the requirement of Ph.D.Degree of Science in Chemistry**


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**To**

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**2021**

كليه العلوم – قسم الكيمياء

# Approval Sheet

Ph.D Thesis

**"Removal of some chemical and microbial pollutants from wastewater via biochar/iron oxide nano-composite"**

Submitted by

***Ola Mahmoud Abd Almawgood Abd Alaal***

*"M.SC in Analytical Chemistry"*

**A Thesis for**

**Ph.D of Science in Chemistry**

**Thesis supervisors:** **Approved**

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*"My entire deep thanks for my* ***parents*** *and my* ***family*** *specially my* ***husband*** *for everything, I know how much they have been suffering and how much they love me".*

***OLa .M. Abd Al-mawgood.***

# اهداء

***أتقدم بإهداء هذه الرسالة إلى "زوجي الغالي ووالدى الفاضل ووالدتى الغالية"، أشكر لهم تشجيعهم إلى أن خرج هذا العمل بهذا الشكل بفضل الله ثم بفضلهم علىَّ و أتمنى لهم دوام الصحة والعافية. كما أهدى هذه الرسالة إلى" إخوتى" وإلى وأولادي "سليم حمدي السيد و بيرين حمدي السيد "***

# ABSTRACT

□ **Name:** Ola Mahmoud Abd Almawgood Abd Alaal.

□ **Title of the thesis:** Removal of some chemical and microbial pollutants from wastewater via biochar/ iron oxide nano-composite.

□ **Degree:** Ph.D. Sc. unpublished Doctoral of Science thesis, Faculty of science- Ain-Shams University, 2021.

This work has been carried out to evaluate the efficiency of low cost adsorption materials in Fe and Zn removal from wastewater released from wastewater treatment plant at Quhafa Al-Fayoum plant works by activated sludge extended aeration system. This showed by preparing two composites SCB-BC/ $Fe_3O_4$ and RH-BC/ $Fe_3O_4$ . The best results showed high removal rates Zn ions by SCB-BC/ $Fe_3O_4$ (97%). The two composites showed equal removal rates for Fe ions (90%).

□ **Key words:**

**Biochars, nano-magnetite, adsortion.**

Prof. Dr. / **A. A.Abdel-Shafi**

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# Content

CHAPTER THREE

3 RESULTS AND DISCUSSION

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