شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

شبكة المعلومات الجامعية

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التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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HANAA ALY

Cairo University

Use of Continuous-Flow Sequencing Batch Biofilm Reactor (CSBBR) for Improving the Treatment Process in the Wastewater Treatment Plants

By

Ahmed Abdelhalim Sallam

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
in
Civil Engineering-Public Works

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Under the Supervision of

Prof. Dr. Hisham Sayed Abdel Halim

Professor of Sanitary and Environmental Engineering
Public Works Department
Faculty of Engineering ,Cairo University

Dr. Abdelsalam Ahmed Elawwad

Associate Professor of Sanitary and Environmental Engineering
Public Works Department
Faculty of Engineering ,Cairo University

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Approved by the
Examining Committee

____
Prof. Dr. Hisham Sayed Abdel Halim Thesis Main Advisor

____
Dr. Abdelsalam Ahmed Elawwad Advisor

____
Dr. Mona Mohammed Galal El-Din Internal Examiner

____
Prof. Dr. Maha Mostafa El Shafei External Examiner

- Professor of sanitary and environmental engineering,
  Housing and Building National Research Center

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
2020

Engineer's Name: **Ahmed Abdelhallem Sallam Bekhet**.
Date of Birth: 31/12/1965
Nationality: Egyptian
E-mail: ahmdsallamsallam@gmail.com
Phone: 01223411972
Registration Date: 01/10/2012
Awarding Date: / /2020
Degree: Master of Science
Department: Civil Engineering – Public Works.

Supervisors:

Prof. Hisham Abdel Halim
Dr. Abdelsalam Elawwad

Examiners:

Prof. Dr. Hisham Sayed Abdel Halim (Thesis Main Advisor)
Dr. Abdelsalam Ahmed Elawwad (Advisor)
Dr. Mona Mohammed Galal El-Din (Internal Examiner)
Prof. Dr. Maha Mostafa El Shafei (External Examiner)
-Professor of sanitary and environmental engineering,
Housing and Building National Research Center

Title of Thesis:

Use of Continuous-Flow Sequencing Batch Biofilm Reactor (CSBBR) for Improving the Treatment Process in the Wastewater Treatment Plants

Key Words:
Wastewater treatment; CSBBR; Organic Removal; SBR with media; wastewater treatment.

Summary: In this research, a pilot plant was constructed and operated using the continuous-flow sequencing batch biofilm reactor (CSBBR) to study its performance towards wastewater treatment. The experimental work was conducted at Zenien WWTP through different 4 stages using two reactors (R1, R2): The first stage (start-up) carried out in 49 days, the second stage (Low organic load) carried out in 21 days, the third stage (Low organic with added media in R2) carried out in 70 days, and the fourth stage (medium organic load with added media in R2) carried out in 84 days, respectively. Thus, the pilot plant has been operated for 224 continuous days. The temperature was between (16.1 - 33 °C), and pH (6.00 - 7.84). The media used during the third & fourth stages is polyethylene HDPE Bio Pac Media with specific surface area of 600 m^2/m^3 and have been occupied 30% of the reactor volume. The solid retention time (SRT) was adjusted to be 15 days for all stages, flow rate was (10 L/Hr.), and hydraulic retention time (HRT) was (6 hrs.) for all stages. The removal rates have improved after media addition, and the pilot plant has showed stability for the treatment process with load increases.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

Name: Ahmed Abdelhallem Sallam Bekhet Date: / /2020

Signature:

Acknowledgments

I would like to thank the almighty Allah for the uncountable blessing and mercy that he has bestowed upon me. My sincerest appreciations go to my supervisors Prof. Hisham Sayed Abdel Halim, and Dr. Abdelsalam Elawwad. Thank you so much for your guidance, input throughout the research and thesis writing period. The last and the most important, my mother and my family. All is nothing without your support and pray. Thank you.

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