Ain Shams University
College of Women
For Arts, Science and Education
Chemistry Department

"Synthesis and Evaluation of Nanostructured Cationic Surfactants with Nanoparticle and Nanopowder Materials as Potential Biocides"

A Thesis Submitted in Partial Fulfillment of the Requirements for Degree of M. Sc. in Organic Chemistry

By

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(B.Sc. Major Chemistry)

To

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QUALIFICATION

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DEDICATION

To My PARENTS

I have to thank Allah for choosing both of you to be my parents.

Thank you for supporting me

TO MY DEAR HUSBAND

And MY DEAR SON

TO MY FAMILY

Thank you for helping me

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Aim of the work

The ability to largely influence the properties and structure of materials has made nanotechnology a quickly developing field that has been gaining interests among the public due in part to the possibilities that this technology provides. Many scientists suggest that nanotechnology will fuel enormous growth within the areas of Biotechnology and Bio-medical Chemistry, and Atomic Positioning.

The main target of this thesis is concluded as the following:

1. Synthesis of a series of cationic thiol surfactants based on 2-mercapto pyridine and has different hydrophobic parts such as decyl, dodecyl and cetyl.

2. Confirming the chemical structure of the synthesized surfactants using FTIR and ^{1}HNMR spectroscopic analysis.

3. Evaluating the surface activity of the synthesized surfactants using the surface tension, the interfacial tension and the emulsion stability techniques and studying their surface parameters.