



**Faculty of Science** 

**Chemistry Department** 

## Modern Analytical Techniques for the Quantification of Some Chemical Warfare Agents and Related Substances

Thesis submitted for the degree of master

In

**Inorganic and Analytical Chemistry** 

Presented by

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Ain Shams University
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(Inorganic & Analytical Chemistry)

To

Department of Chemistry

Faculty of Science

Ain Shams University





#### "Modern Analytical Techniques for the Quantification of Some Chemical Warfare and Related Substances"

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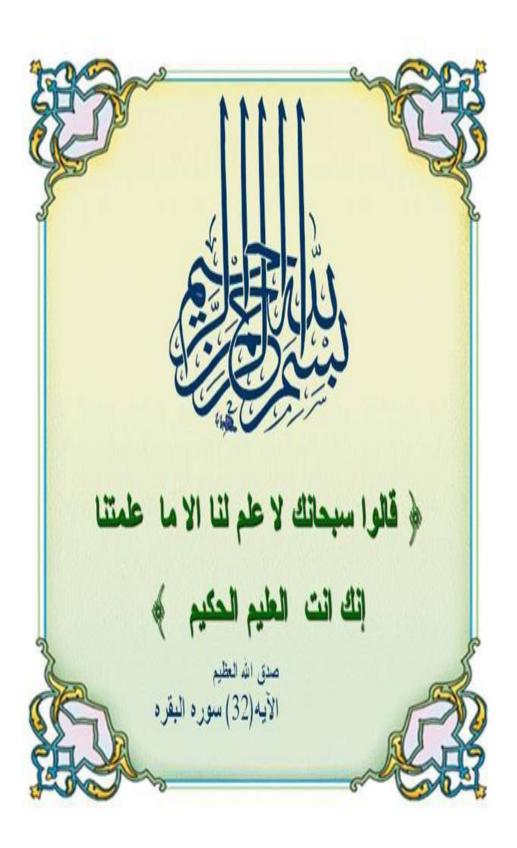
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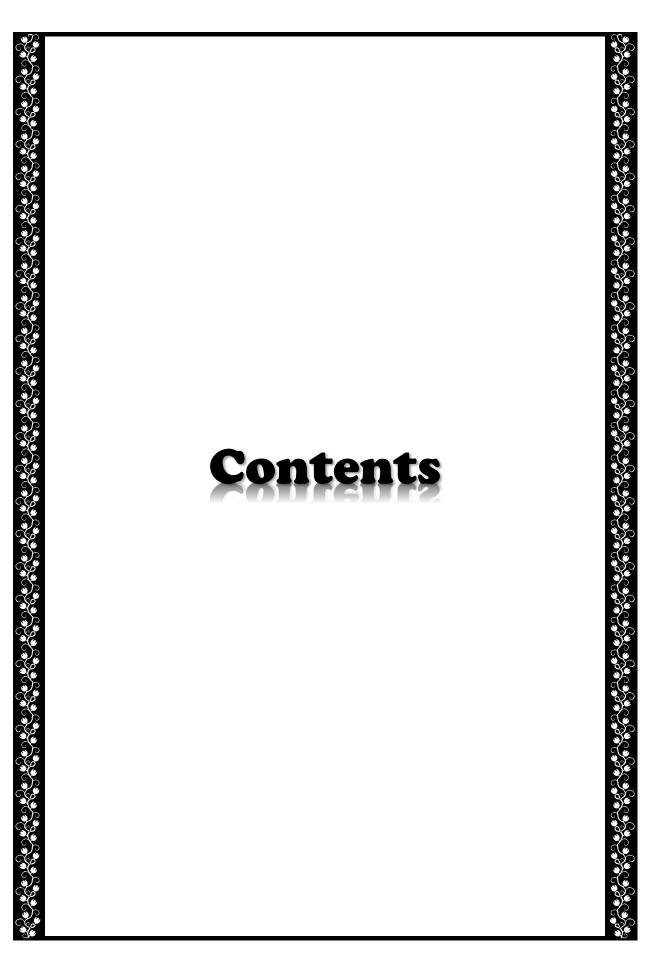
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Ahmed M. M. Galal El-Din

### **4** Published papers extracted from the master thesis:

- 1. Screen-printed microelectrodes as solid contact type for trace analysis of azide based on potentiometric transduction.
- 2. An all-solid-state polymeric membrane ClO<sub>4</sub>-selective electrode based on single-walled carbon nanotubes (SWCNTs) as solid-contact: Applications to fireworks and propellants analysis.
- 3. Improved solid-contact nitrate ion selective electrodes based on multiwalled carbon nanotubes (MWCNTs) as an ion-to-electron transducer.



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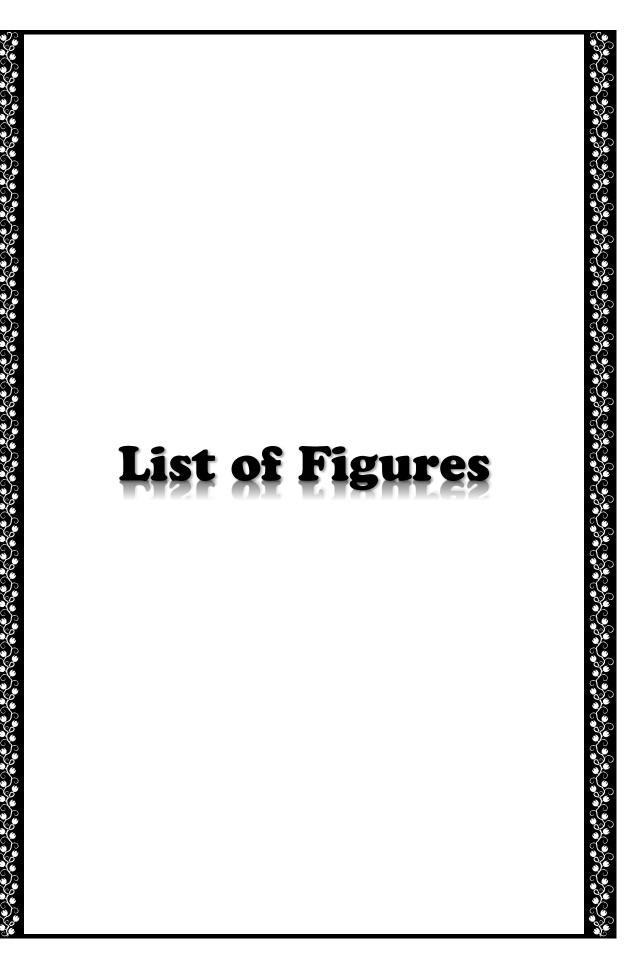
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