

**Diurnal Change of Volatile Organic
Compounds in the Greater Cairo Area**

By

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B.Sc. Science (Chemistry), Cairo
University, ()**

**A Thesis Submitted in Partial Fulfillment
Of
The Requirement for the Master Degree
In
Environmental Science**

***Ain Shams University
Institute of Environmental Studies and Researches
Dep. Of Environmental Basic Sciences***

Approval Sheet

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ABSTRACT

Air pollution represents an environmental problem of public concern due to its negative effect on human health.

This investigation aims at investigating the concentrations of some hazardous compounds namely: volatile organic compounds VOC,s in air samples collected from some locations in Greater Cairo area . These locations were selected to represent some regions of high traffic intensity and other industrialized regions. Two methods for samples collection were utilized: () the US EPA Environmental Protection Agency (EPA TO A) in which a stainless steel canister pump ventilated sampling line, and () the use of organic vapour monitors passive samplers. Analyses of the samples were preformed using GC/MS and gas chromatograph equipped with flame ionization detector .The results obtained revel the following:

- Volatile organic compounds were detected in high concentration in some regions in Greater Cairo area especially those with high traffic intensity both indoor and outdoor.

- In addition to traffic flow, there are other meteorological factors causing diurnal variations in the concentration of VOC,s.

AKNOWLEDGMENT

My Sincere thanks to my supervisor for advice provided by **Prof. Dr. Abou Bakr Ramadan** , National Center for Nuclear Safety and Radiation Control - Atomic Energy Authority for suggesting the point, valuable advice, continuous encouragement and critical reviewing of the printed copy.

Deep thanks and gratitude are extended to **Prof. Dr. Ahmed Ismael Hashem,** Prof. of Organic Chemistry - Faculty of Science- Ain Shams University for his supervision, valuable advice and guidance in writing and reviewing the thesis.

Thanks also to all my colleagues in the Egyptian Environmental Affairs Agency (EEAA) for help and cooperation.

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REFERENCES

List of abbreviation

DNPH: dinitrophenylhydrazine

US EPA: United States Environmental Protection Agency

ppm: part per million

ppb: part per billion

ppt v: part per trillion volume

VOCs: volatile organic compounds

BTEX: (benzene toluene xylene)

MTBE: (Methyl Tertiary Butyl Ether)

GC/MS: gas chromatography / mass spectroscopy

GC/FID: Gas Chromatography / Flame Ionization Detector

HAPs: Hazardous air pollutants

CMB: chemical Mass Balance

NMHC: Non Methanic Hydro carbon

PMF: Positive Matrix Factorization

PCO: Photo catalytic oxidation

WHO: World Health Organization

HPLC: High pressure liquid Chromatography

ECD: electron Capture detector

LOQ: limit of quantitation

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