

*Ain Shams Univeristy
Faculty of Science
Chemistry Department*



***Physico-chemical Study of Some Prepared Dyed Films
and Possible Application as Radiation Dosimetry
Monitors***

A Thesis Submitted By

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M.Sc., (Chemistry), (2003)

For The Fulfillment of The Degree of Ph.D.in Chemistry

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Cairo – 2015

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَالْحَمْدُ لِلَّهِ الَّذِي
بَدَأَ خَلْقَ الْإِنسَانِ مِنْ طِينٍ
ثُمَّ عَلَّمَهُ الْقُرْآنَ وَحْدَهُ
وَالْحَمْدُ لِلَّهِ الَّذِي
بَدَأَ خَلْقَ الْإِنسَانِ مِنْ طِينٍ
ثُمَّ عَلَّمَهُ الْقُرْآنَ وَحْدَهُ

ACKNOWLEDGEMENT

*First and foremost, I would like to thank **Allah** for giving me the opportunity and the strength to accomplish this work.*

*I would like to express my deep gratitude to **Prof. Dr. Abdel Gawad Mohamed Rabie** prof. of Organic Chemistry, Faculty of Science, Ain Shams University. He was always kind enough to suggest the topics of research and to follow up the progress of the work with keen interest; guidance, moral support, valuable criticism and whose efforts made this humble work a success.*

*I am deeply indebted to **Prof. Dr. Seif El-Din Ebraheem** Professor of Radiation Chemistry, National Center for Radiation Research and Technology, Atomic Energy Authority, AEA, for his profound interest, valuable advice, continuous encouragement and constructive criticism throughout the thesis.*

*I am deeply indebted to **Dr. Sayeda Elawa Eid**, Associated Professor of Radiation Chemistry, National Center for Radiation Research and Technology, Atomic Energy Authority, for her*

valuable assistance, diligent guidance, keen interest, fruitful discussions and continuous help during the progress of the work.

*I wish to express my thanks to **Prof. Dr. Wafaa Badr El-Dein** for her assistance and support.*

Thanks also to my husband and my friendly colleagues of Radiation protection and Dosimetry Department National Center for Radiation Research and Technology (NCRRT) for their kindness and unfailing help.

Dedication

To soul of my father and sister

To my mother

To my dear husband

To my lovely son and daughter

Aim of the work

The aim of the present thesis is the investigation of different dosimetry systems with objective of studying the possibility of their use as gamma dosimeters.

Moreover, it is aimed at finding suitable practical labeling film, rods dosimeter for high dose dosimetry. The study includes the evaluation of the dosimeter response using different techniques. Also, the study is extended to investigate in detail the variation of response of these films under the effect of different environmental conditions (e.g. light, dark, relative humidity etc) both during irradiation and storage time. These all film dosimeters prepared in the thesis can be applied in medical, pharmaceutical sterilization processing and water treatment etc.

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Abbreviations

Symbol	Name
PVB	Poly (vinyl Butyral)
PVA	Poly (vinyl alcohol)
MSG	Mono Sodium Glutamate .6H ₂ O
CPR	Chlorophenol Red
QR	Quinaldine red
MTB	Methy thymol Blue
TBPPEE-Ksalt	Tetrabromophenolphathalien ethyl ester potassium salt
BG	Brilliant Green
4PNPAN	4-p-nitophenyl-azo 1-naphthol
ISO	International Organization for Standarization
ASTM	American Stander of Testing and Materials