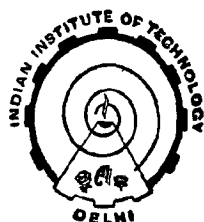


SOME ASPECTS OF PHOTOCHEMISTRY OF CONJUGATED CARBONYL COMPOUNDS

A thesis submitted to the
INDIAN INSTITUTE OF TECHNOLOGY-DELHI
For Award of Degree of
DOCTOR OF PHILOSOPHY

by
R. C. ARYAN



Department of Chemistry
INDIAN INSTITUTE OF TECHNOLOGY, DELHI
1985

TO PARENTS

CERTIFICATE

This is to certify that the thesis entitled " Some Aspects of Photochemistry of Conjugated Carbonyl Compounds" submitted by Mr. R. C. Aryan to the Indian Institute of Technology-Delhi, for award of degree of Doctor of Philosophy in Chemistry, is a record of bonafide research work carried out by him under my guidance and supervision. The candidate has fulfilled all requirements for submission of this thesis which, in my estimation, has reached the requisite standard.

The results contained in this thesis have not been submitted in part or full to any other University or Institute for the award of any degree or diploma.

R. P. Gandhi
(R. P. Gandhi)
Professor of Chemistry
IIT - Delhi
(Supervisor)

22.7.85

ACKNOWLEDGEMENTS

The author wishes to express his deep gratitude to Professor R.P. Gandhi, Head, Photochemistry and NMR Laboratories, Department of Chemistry, Indian Institute of Technology-Delhi, New Delhi, for his profound interest, constant encouragement and invaluable guidance throughout the present work.

The author is grateful to Prof. N. K. Jha, Head, Department of Chemistry, I.I.T.-Delhi, for allowing a liberal use of Laboratory and other facilities.

Sincere thanks are due to M/s. M. P. Singh Ishar, P. K. Mehta, A. Wali and other colleagues and friends for their unflinching support and strenuous efforts towards preparation of the manuscript.

The author takes this opportunity to thank all the technical and other staff members of the Chemistry Department, I.I.T.Delhi for their sincere help. Thanks are also due to Dr. C. L. Jagga, Incharge Mass Spectrometry Laboratory, for recording the Mass Spectra.

Mr. T. R. Sharma deserves special thanks for being prompt in typing the thesis.

Finally, the author is indebted to Oil and Natural Gas Commission for granting extra ordinary leave to complete the thesis work.

(R. C. ARYAN)
22.7.85

CONTENTS

	Page
Acknowledgement	
General Introduction	1-15
Photochemistry of Conjugated Carbonyl Compounds-	
An Introduction	16-45

Results and Discussion

Section A

Photochemical Transformations in Arylidene- β - Ionone Derivatives	46-69
---	-------

Section B

Photorearrangements in Some Cyclopropyl Ketones	70-97
Experimental	98-142
References	143-155
Summary	i-xi