# SOME REACTIONS WITH 2,4-DIMETHYL CHALCONES

A THESIS

In Partial Fulfilment of The Requirements

OF

MASTER OF SCIENCE DEGREE

BY

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(B.Sc.)



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STUDIES ON CHALCONES

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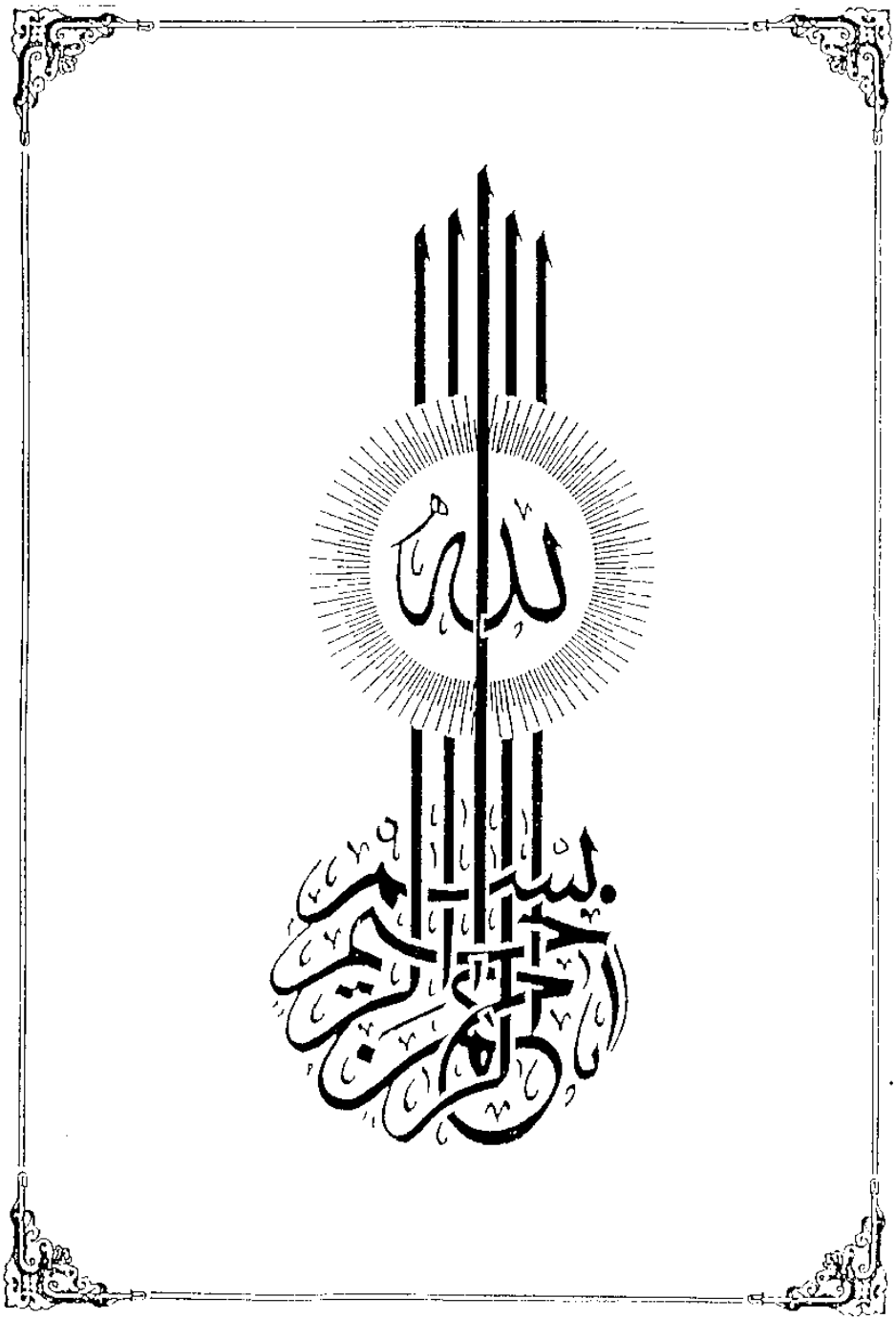

# N O T E

Beside the work carried out [illegible] candidate has attended post-graduate [illegible] years in organic chemistry including [illegible] topics:

1) Reaction mechanisms
2) Advanced spectroscopy
3) Natural products
4) Organic reactions
5) Other selected topics.

He had successfully passed an [illegible] topics.

Prof. Dr

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## A C K N O W L E D G E M E N T

The author wishes to acknowledge his sincere gratitude and indebtness to Professor Dr. Abd Elmaged Sammour (D.Sc.) and to Dr. Ameen A. Afify, Lecturer, Faculty of Science, Ain Shams University. They were kind enough to suggest the lines of research investigated and to follow the progress of the work with keen interest, guidance and valuable criticism.

C O N T E N T S

## STATEMENT AND OBJECTIVES OF THE PROBLEM

The introduction of aromatic radicals into the terminal positions of the system $-C=C-C=O$, as in chalcones increase its polar character.

The author studied the reactivity of some chalcones towards some reagents under Michael conditions.

The objectives of these study are:

1) To study the reactivity of 2':4'-dimethylchalcones towards some of the active methylene substrates.

2) To study the effect of hydrazine, phenylhydrazine and hydrogen cyanide on chalcones.

3) To study the effect of hydrazine, phenylhydrazine, hydroxylamine, amines and aldehydes on the Michael adducts.

4) To study the effect of hydrazine, phenylhydrazine and hydroxylamine on chalcone dibromides.

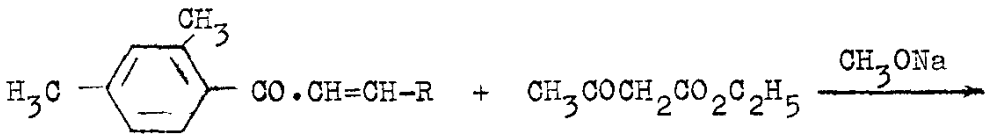
5) To study the epoxidation of chalcones.

# SUMMARY OF THE ORIGINAL WORK

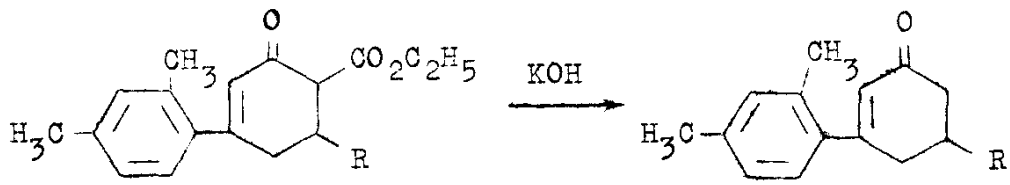
## SUMMARY OF ORIGINAL WORK

## REACTIONS WITH 2':4'-DIMETHYLCHALCONES AND THEIR DIBROMIDES AND EPOXIDES

The Michael reaction of 2':4'-dimethylchalcones (I) with ethylacetoacetate yielded the Michael adduct (III) which could be decarbethoxylated to (IV) by alcoholic KOH.



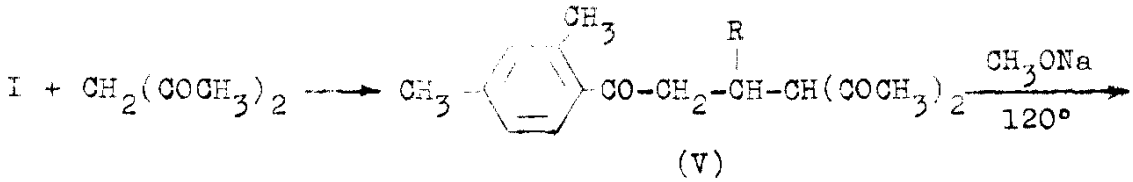

(I)



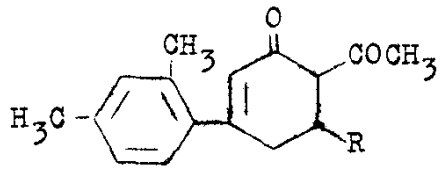

(III) (IV)

a; R = $C_6H_5$ b; R = $C_6H_4OCH_3$(p)

The Michael adducts V,VI were obtained by reaction of I with acetylacetone.

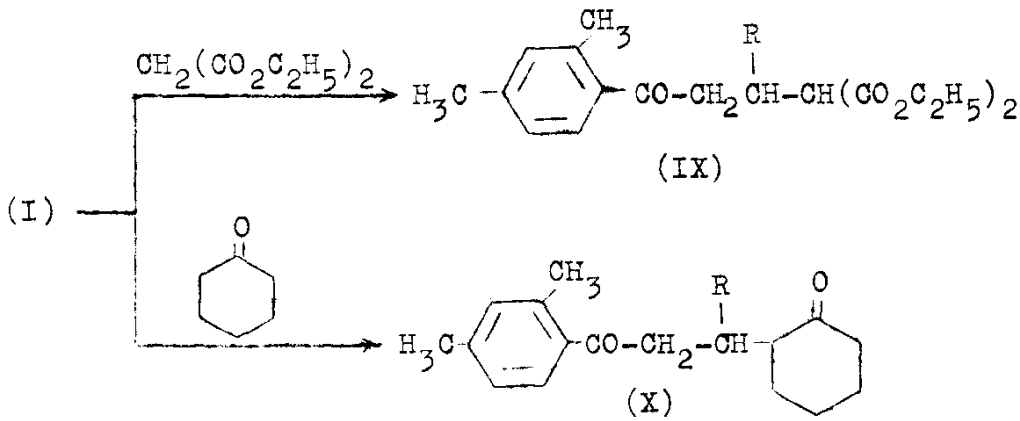


(V)



(VI)

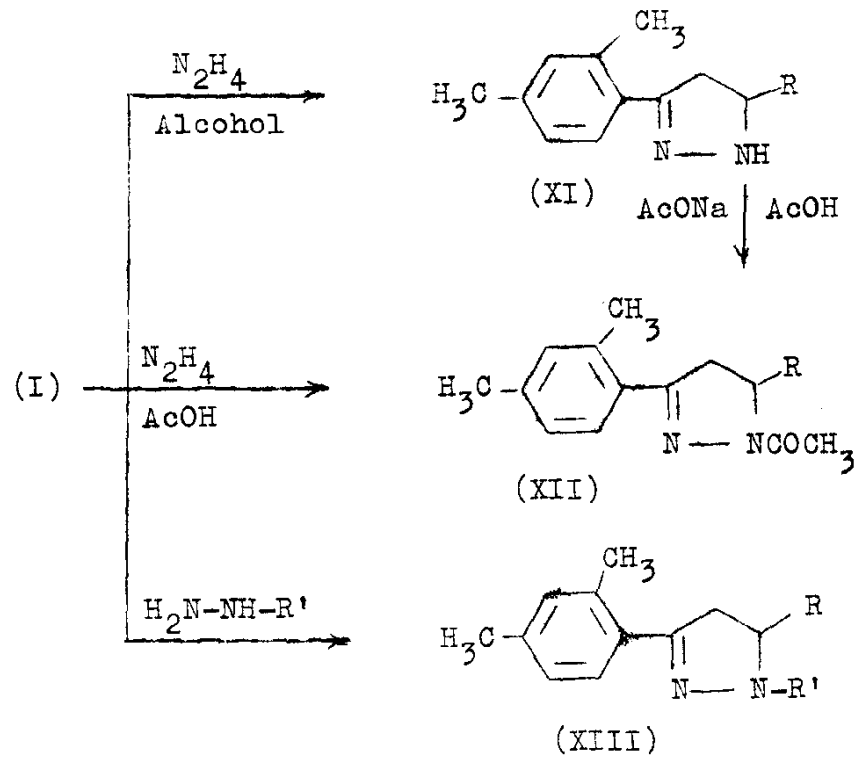
When I was allowed to react with diethyl malonate and cyclohexanone, it yielded IX and X.



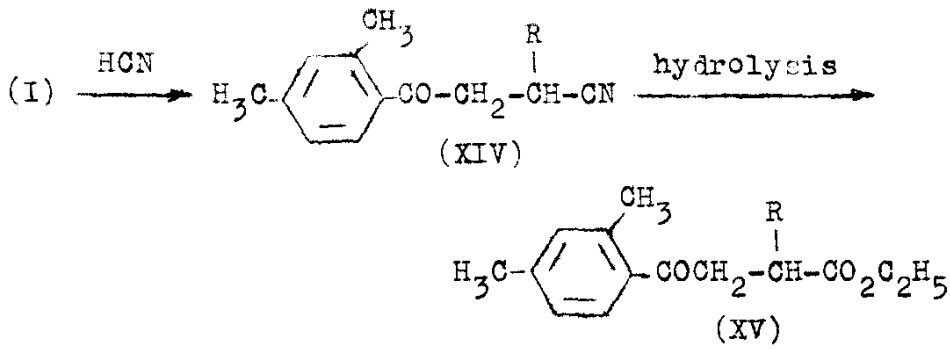
(IX)

(X)

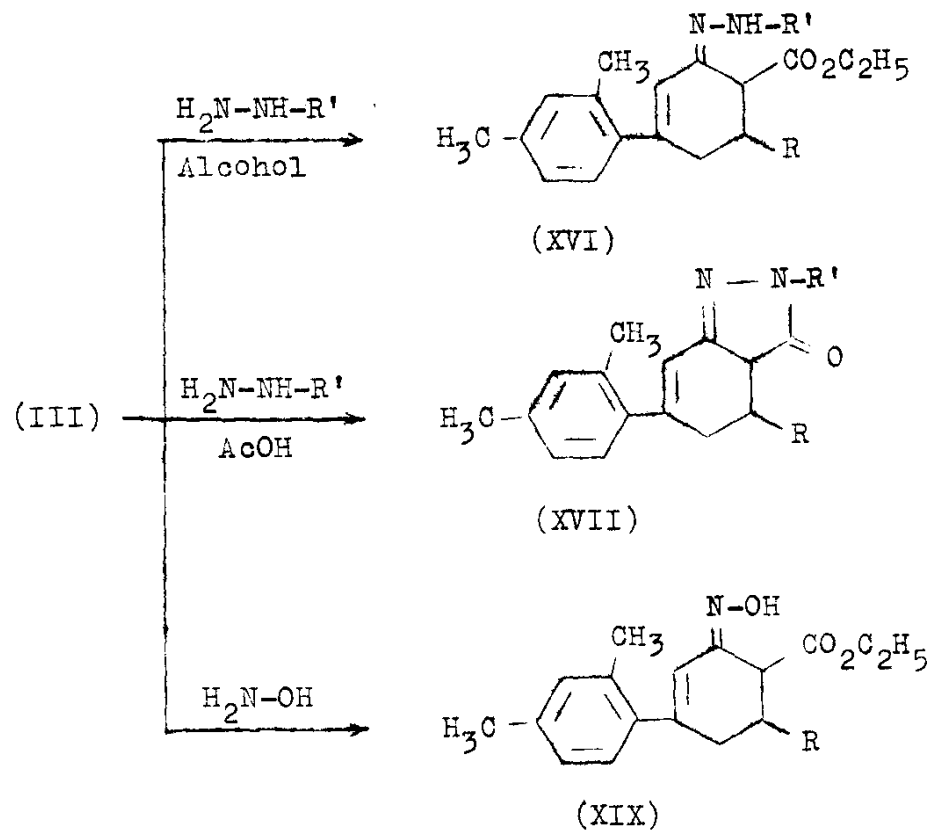
Condensation of I with hydrazine hydrate, phenylhydrazine and 2:4-dinitrophenylhydrazine, yielded the pyrazolines XI-XIII.

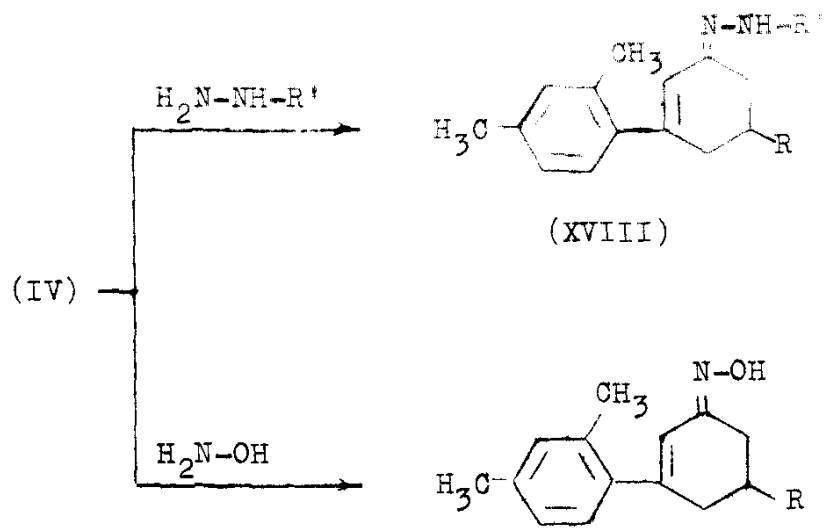



Addition of hydrogen cyanide to I yielded XIV which gave XV by hydrolysis.



Condensation of the adducts III and IV with hydrazine hydrate, phenylhydrazine and hydroxylamine hydrochloride yielded XVI, XVII, XIX, XVIII, XX.

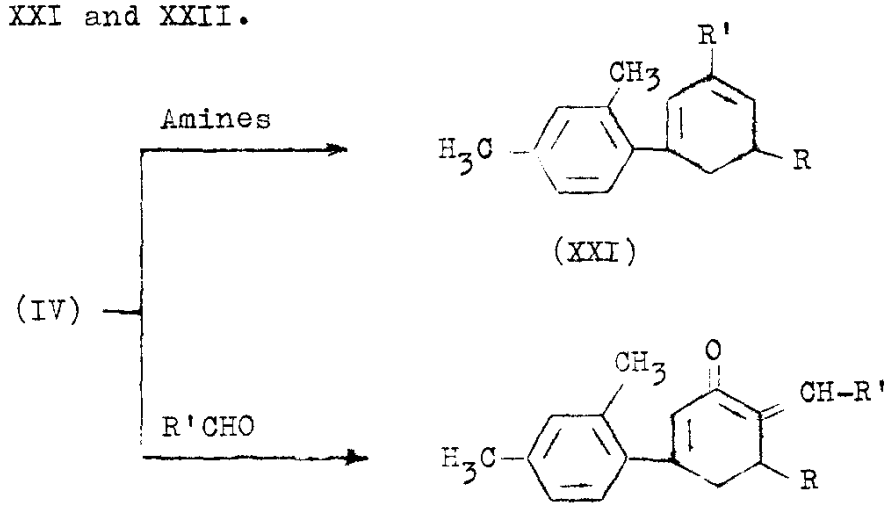





(XVIII)

(XX)

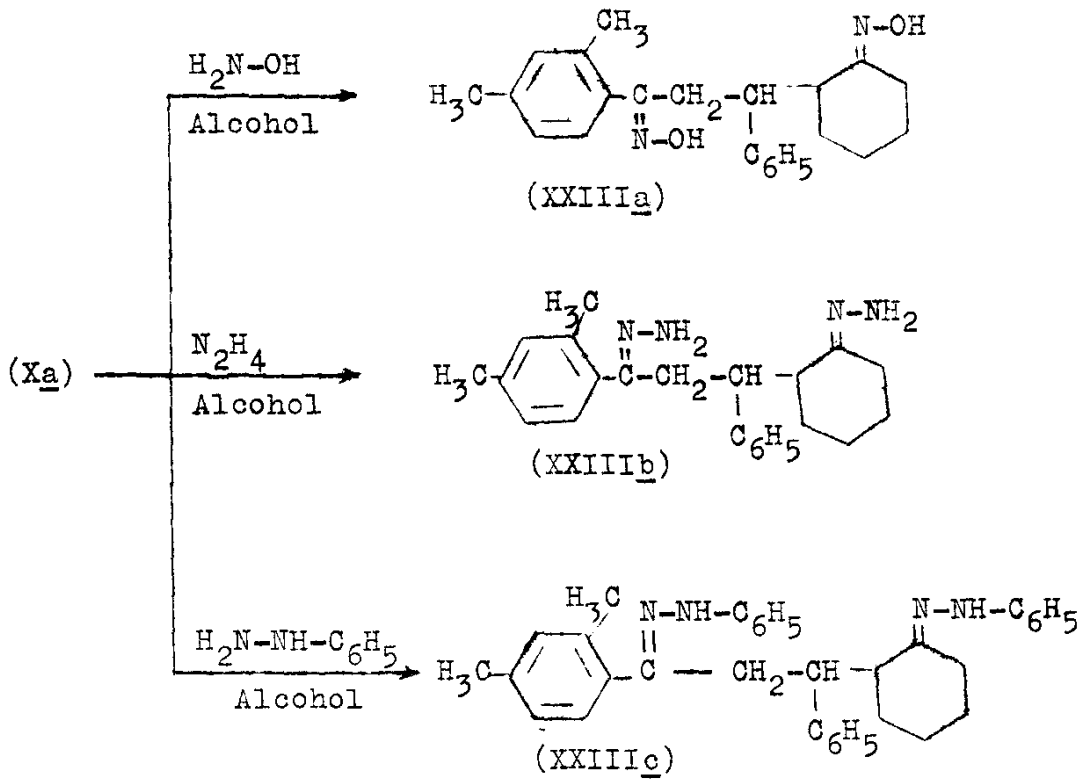
Reaction of IV with amines and aldehydes yielded XXI and XXII.




(XXI)

(XXII)

Xa Condensed with hydroxylamine hydrochloride, hydrazine hydrate and phenylhydrazine and gave XXIIIa-c.




The reaction of chalcone dibromides (XXIV) with hydrazine hydrate, phenylhydrazine and hydroxylamine hydrochloride in boiling acetic acid gave the pyrazole and isoxazole derivatives XXV and XXVII.