بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

Studies With Functionally Substituted N-Alkylheteroaromatics: Novel Synthesis of Azoles, Pyridazinones and Pyridines

A THESIS SUMBITTED

By

Osama Abdel – Motaleb Y. Salah

B.Sc. (1979), MSc. (1994)

For

The Ph. D. Degree

(Organic Chemistry)

Department of Chemistry – Faculty Of Science

Cairo University

2003

APPROVAL SHEET FOR SUBMISSION

Title of [Ph.D.] thesis:

"Studies with functionally substituted N-alkylheteroaromatics: Novel synthesis of Azyles, pyridazines and pyridines".

Name of candidate: **Osama Abdel-Motaleb Y. Salah**

This thesis has been approved for submission by the supervisors:

1- Prof. Dr. Mohamed Hilmy. Elnagdi
signature:

2- Dr. Mervat Mohamed Abdel-Khalik.
signature:

3- Dr. Elham Sayed Darwish
signature:

Prof. Dr. Sadek A. Abdou
Head of Chemistry Department
Faculty of Science
Cairo University

ABSTRACT

Name : Osama Abdel-Motaleb Yousef Salah

Title of thesis:

Studies with functionally substituted N- Alkylheteroaromatics: Novel synthesis of Azyles, Pyridazinones and Pyridines

Degree:

(Ph. D) thesis organic chemistry Faculty of science, Cairo university 2001/2002

This work has been carried out to investigate the:

Reactivity of benzotriazolylacetone toward a variety of carbon and nitrogen electrophiles and synthesis of novel azolylbenzotriazoles as well as benzotriazolyl-cinnolines and enaminonitriles for synthesis of condensed heterocycles.

Key words:

Benzotrizolylacetone, N, N-Dimethylformamide dimethylacetal, azolylbenzotriazolyl, benzotriazolyl cinnolines, enaminones, aminothiphene carbonitrile.

Supervisors:

Prof. Dr. Mohamed Hilmy Elnagdi.

Dr. Mervat Mohamed Abdel-Khalik

Dr. Elham Sayed Darwish

Prof. Dr.

Sadek E. Abdo

Chairman of chemistry department

Faculty of Science – Cairo University

ACKNOWLEDGEMENT

I wish to express my sincere grateful and heartfelt thanks to ***Prof. Dr. M. H. Elnagdi*** (D. Sc), professor of Organic Chemistry not only for suggesting the subjects investigated but also for his guidance, invaluable suggestions that helps in discussion of the results and constrictive advises during the work

My deepest appreciation and grateful thanks to ***Dr. Mervat Abdel-Khalik*** for her unfailing support, valuable advise and encouragement during my work in the laboratory and writing this thesis.

Special thanks are due to ***Dr. Elham S. Darwish*** for her assistance during the work.

Special thanks to those who made this work possible.

CONTENTS

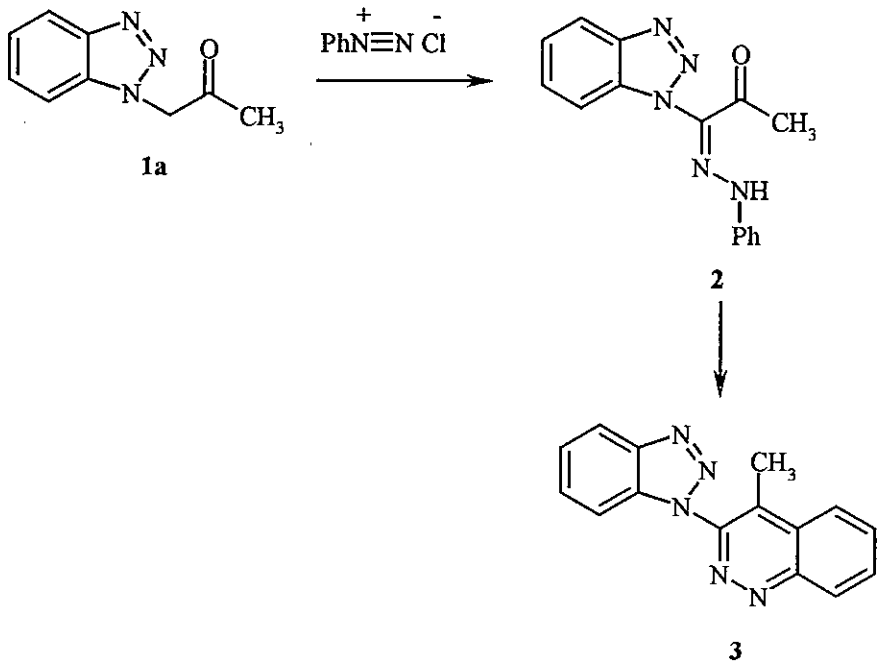
Contents

ENGLISH SUMMARY

Part I

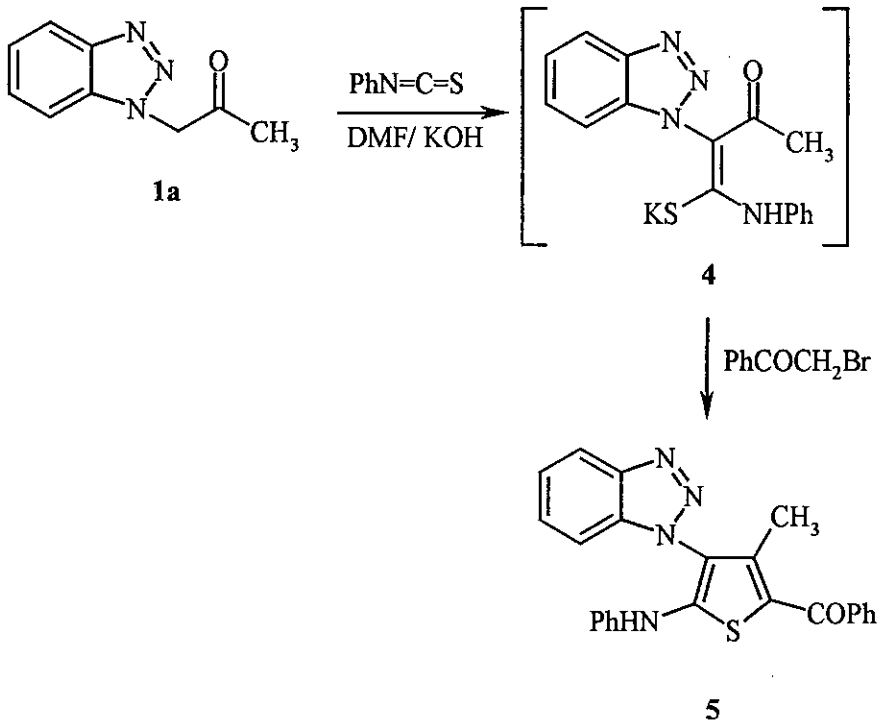
In this thesis we report on the reactivity of alkylbenzotriazole acetone derivative toward nitrogen and carbon electrophiles.

Thus benzotriazole acetone **1a** coupled with benzene diazonium chloride yielding the corresponding phenylhydrazone derivative (**2**) that cyclized to the cinnoline derivative (**3**) under basic condition.



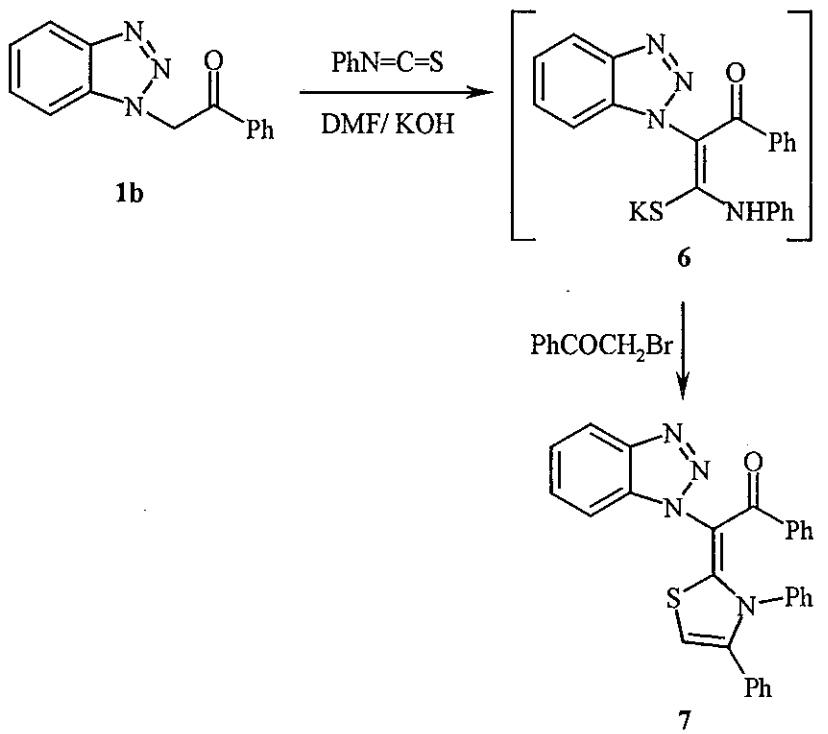
The reaction of benzotriazole acetone **1a** toward a variety of carbon electrophile has been also investigated with the aim of preparing novel functionally substituted heteroaromatics.

Thus treatment of **1a** with phenylisothiocyanate in a basic medium and subsequent treatment of the formed adduct (**4**) in situ with phenacylbromide afforded the benzothiophene derivatives (**5**).



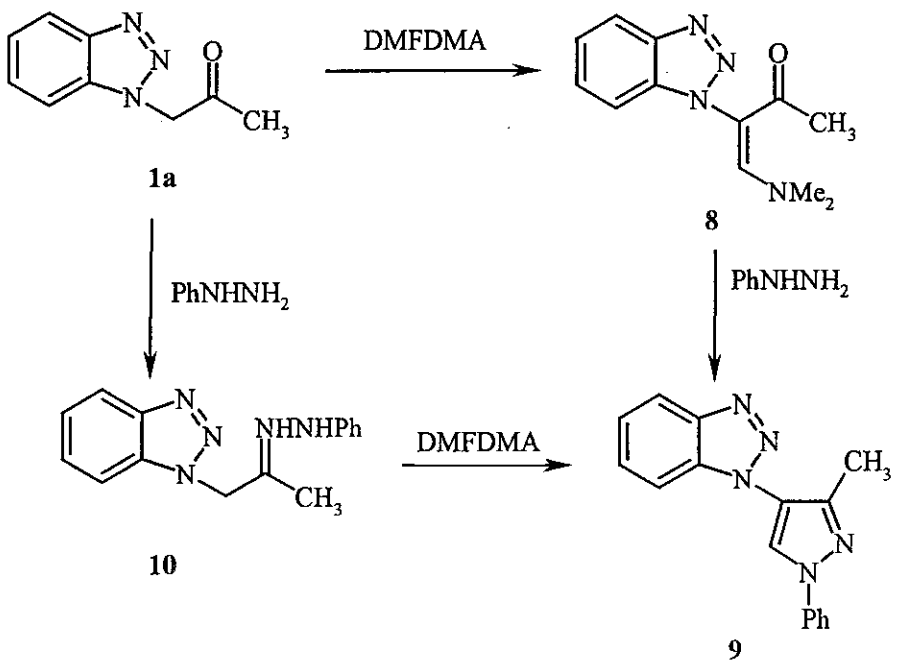
1a **4** **5**

while treatment of **1b** with the same reagent under similar conditions the thiazole derivative **7** is obtained.



1b **6** **7**

Compound **1a** condensed with dimethyldiformamide acetal yielding the enaminone **8** that reacted with phenyl hydrazine to yield the pyrazole derivative **9**. isomeric pyrazole derivative was obtained via initial condesation of **1a** with phenyl hydrazine and subsequent treatment of the hydrazone (**10**) with dimethyldiformamide acetal.



Compound **1a** reacted with hippuric acid in refluxing acetic anhydride to yield the pyranone 11 which is an extension of the Kepe-2H-pyranone synthesis [147].