

بسم الله الرحمن الرحيم



HOSSAM MAGHRABY



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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بعض الوثائق الأصلية تالفة



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بالرسالة صفحات

لم ترد بالأصل



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Spectroscopic Characteristics and Photochemical Studies of Some Mercocyanin –like Azole dye,

A thesis submitted for

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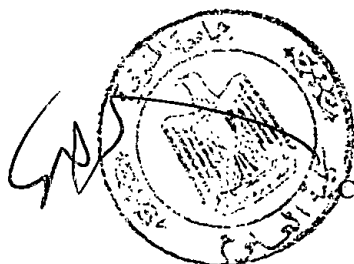
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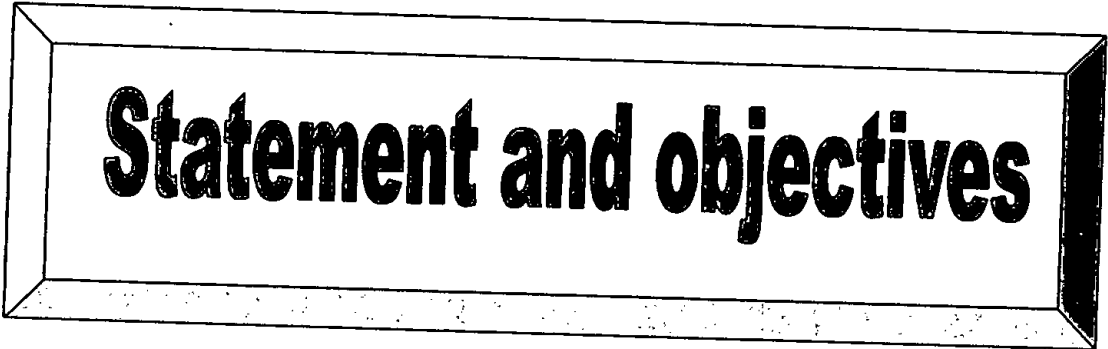
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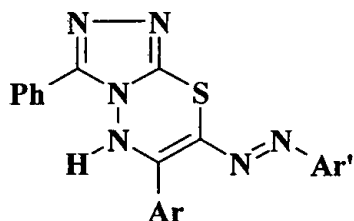
Statement and objectives

Statement and Objectives of the Problem

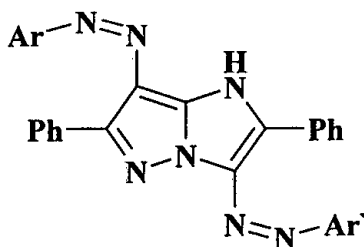
Fluorescent organic compounds have been the subject of intense research for photofunctional materials, and have found wider applications in various fields such as photo-therapy, laser chemistry, high performance sensor, fluorescence probes or electroluminescence devices [93MI1][90MI2][98MI3]. The compounds for these applications are required not only to show efficient fluorescence, but also to have a variety of additional functionalities such as molecular recognition, high stability and physiological activity. Since there are limitations in modification of the existent fluorophores, new series of fluorescent compounds are actively studied to develop new functionalised fluorescent compounds.

In the present thesis, we wish to report the synthesis of two novel series of arylazo derivatives of fused azoles that are expected to function as fluorophores. These are 7-arylhydrazono-3,6-disubstituted 1,2,4-triazolo[3,4-b][1,3,4]thiadiazines **1** and 3,7-Bis(Arylazo)-2,6-diphenyl-1H-imidazo [1,2-b]pyrazoles **2**. The interest in these azo derivatives is dictated by the fact that literature search reveals that there is as yet no report on such azo compounds. This seems somewhat surprising in view of the various uses of derivatives of [1,2,4]triazolo[3,4-b] [1,3,4]thiadiazine and 1H-imidazo [1,2-b]pyrazole ring systems. For example, many of the former ring systems have been reported to exhibit interesting biological and pharmaceutical activities [78IJC(B)481] [83IJC(B)270] [89EJMC199] [89JHC177] [90JICS695] in addition to the use of some as photographic couplers [92CA257383] [92CA9837][95CA340150]. Also, many derivatives 1H-imidazo [1,2-b] pyrazole ring system have been utilized as magenta photographic couplers [95CA183329] [97CA311355] [97CA301208] [96CA90281] [96CA7195] and a chromogenic redox-indicators

[95CA260538], and some others as herbicides [97CA293354], anti-inflammatory and anti-allergy [96CA87009] [98CA22339] and anticancer agents [95CA16926] [97CA311355].

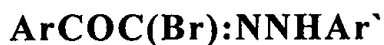


1



2

The target compounds **1** and **2** were synthesised by using 2-aryl-2-oxoethanehydrazonoyl bromides **3** as precursors. The latter halides were shown by Shawali et al [93CR731] to be very useful synthons for various arylazo heterocycles. In addition to their synthesis, the absorption and fluorescence spectra of the studied compounds **1** and **2** were recorded.



3

Furthermore, as the compounds **1** and **2** in question can have more than one tautomeric structure (Chart 1 and 2), it was thought necessary to determine the acid dissociation constants pK and pK^* of each series in their ground and excited states, respectively and examine their correlation with linear free energy relationships. The objective is to elucidate the actual tautomeric structure of compounds **1** and **2** in both ground and excited states.