**Abstract**

This thesis comprises four chapters. The first one is an introduction that comprises a hint on biological view of inflammation and different drugs used in its treatment. It also includes the different methods adopted to synthesize some diaryl and triarylheterocycles with a pyrazole, pyrazoline or pyridine as central ring.

The second chapter deals with the aim of this work and schemes those had been carried out to obtain the target compounds.

The third chapter clarifies the discussion of the experimental work for the preparation of starting materials **Ia&b**, **IIa&b**, **III**, **IVa&b**, **Va-d**and **Xc-m**in addition to two known compounds **IXb**and **XIIIc**.

Compounds **VIa-d**and **VIIa-d**were synthesized by cyclization of certain chalcones **Va-d**with malononitrile in presence of either ammonium acetate or sodium methoxide in sequent.

In addition, compounds **VIIIa-d**were synthesized by cyclization of a series of chalcones **Va-d**with ethyl cyanoacetate in presence of ammonium acetate.

Also, the reaction of chalcones **Va,c,d**with hydrazine hydrate in presence of glacial acetic acid as solvent afforded the pyrazolo dervatives **IXa,c,d**.

Furthermore, cyclization of chalcones **Xa-m**with *p*-sulfamylphenylhydrazine hydrochloride **(Ia)** afforded 1,3,5-triaryl-2-pyrazolines **XIa-m**through Michael addition reaction.

On the other hand, cyclization of chalcones **Vb&d**with **Ia** afforded the intermediate hydrazone **XIIa&b**.

Moreover, the condensation of β-diketone **IIa,b,III** and **IVa,b**with either **Ia** or **Ib** afforded 1,5-diaryl-pyrazole derivatives **XIIIa,b**, **XIIId and XIIIe-j** respectively.

Finally, the acid derivatives **XIVa-d**were synthesized by hydrolysis of the corresponding esters **XIIIe-j**.

The fourth chapter consists of the experimental part of this work which contains the detailed procedures used for the synthesis of the starting materials **Ia&b**, **IIa&b**, **III**, **IVa&b**, **Va-d**, **Xa-m**in addition to the final compounds **VIa-d**, **VIIa-d**, **VIIIa-d**, **IXa-d**, **XIa-m**, **XIIa&b**, **XIIIa-j**and **XIVa-d**.

In addition, the data obtained from the elemental and spectral analysis as well as their physical properties is given in this chapter. It also sheds the light on both *in vivo* and *in vitro* anti-inflammatory activity of thirty seven synthesized compounds compared with celecoxib, ibuprofen, etoricoxib and aspirin as standard anti-inflammatory agents. In addition this chapter clarifies the ulcerogenic liability of thirty two synthesized compounds compared with celecoxib and ibuprofen as reference drugs.