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Introductory Chapter - The Newest Research in Nonsteroidal Anti-inflammatory Drugs

Ali Gamal Al-kaf

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Nonsteroidal anti-inflammatory drugs (NSAIDs) include variety of different agents belonging to different chemical classes. However, many of these agents are carboxylic acids [1]. Most of these drugs have three major effects:

1. Analgesic effect,
2. Antipyretic effect, and
3. Anti-inflammatory effect [1]

The main adverse effects of these drugs are gastric irritation and ulceration, renal damage, and skin reaction [2].

The primary action of these agents is inhibition of cyclooxygenase; the enzyme that catalyses the conversion of arachidonic acid into prostaglandin precursors known as endoperoxides. The resulting decrease in prostaglandin synthesis accounts for most of the actions of those agents [2].

Because of the wide availability and frequency of use of NSAIDs, it is important to be aware of their proper use, dose, and potential side effects. It is difficult to choose the NSAIDs and to predict which is the best one. The response of two identical drugs and doses is clearly different. The most qualified person to help choose and find the optimal NSAID is a health care provider [3].

The aim of writing this book is due to the high importance of NSAIDs, to minimize side effects, to monitor and sensitize the population on the potential adverse effects of misuse, to provide additional knowledge about the design and development of new drug delivery systems loaded with NSAIDs potentially useful in the treatment of chronic inflammatory-based

diseases following circadian cycle, and the adverse effects and drug interactions of the non-steroidal anti-inflammatory drugs.

This book covers 14 chapters in which authors from all over the world have participated and includes the following topics:

- Overview of NSAIDs in resource limited countries
- Mechanism of action of nonsteroidal anti-inflammatory drugs
- Nonsteroidal anti-inflammatory drugs on inflammation
- Classification of hypersensitivity reactions to NSAIDs
- Adverse effects and drug interactions of the nonsteroidal anti-inflammatory drugs
- NSAIDs: design and development of innovative oral delivery systems
- Interaction studies of cardiovascular drugs with NSAIDs
- Apoptotic effects of etodolac in breast cancer culture
- Computer aided drug design approaches in the pursuit of the development of selective cyclooxygenase: 2 (COX-2) inhibitor
- Novel drug delivery of nonsteroidal anti-inflammatory drugs (NSAIDs)
- The analgesic and anti-inflammatory effect of terpenoids esters with aminoacids
- Anti-inflammatory and cytotoxicity activity of extract from *Calendula arvensis* flowers
- Analgesics: efficacy and safety of NSAIDs
- Nonsteroidal anti-inflammatory drugs: integrated approach to physical medicine and rehabilitation

This book is a unique one in NSAIDs as a whole book consists of many chapters with different topics in the field of NSAIDs because in medical and pharmaceutical books, there is only one chapter that covers the NSAIDs

I thank all the authors who participated in this book for their valuable, informative, more interested and important topics in NSAIDs.

The book is a concise form covering all newer drugs that will help the readers to a great extent. The major objective of writing this book is to present the information in a lucid, condensed, and cohesive form, to cater specially the needs of readers in medicine and pharmacy. I also wish to acknowledge indebtedness to all who have assisted with the completion of the book. The cooperation of publisher, Intech for Science, Technology and Medicine and publisher is very much appreciated in bringing out this book. The contribution that I received by sustained cooperation of Ms. Nina Kalinić, Publishing Process Manager, cannot be ignored.

Constructive suggestions, comments, and criticism on the subject matter of the book will be delightedly acknowledged, as they will certainly help to improve future editions of the book. It is our hope that this work will prove to be of benefit to the students and teachers of pharmacy, science, and medical scientists.

Author details

Ali Gamal Al-kaf

Address all correspondence to: alialkaf21@gmail.com

Medicinal Chemistry Department, Faculty of Pharmacy, Sana'a University, Yemen

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