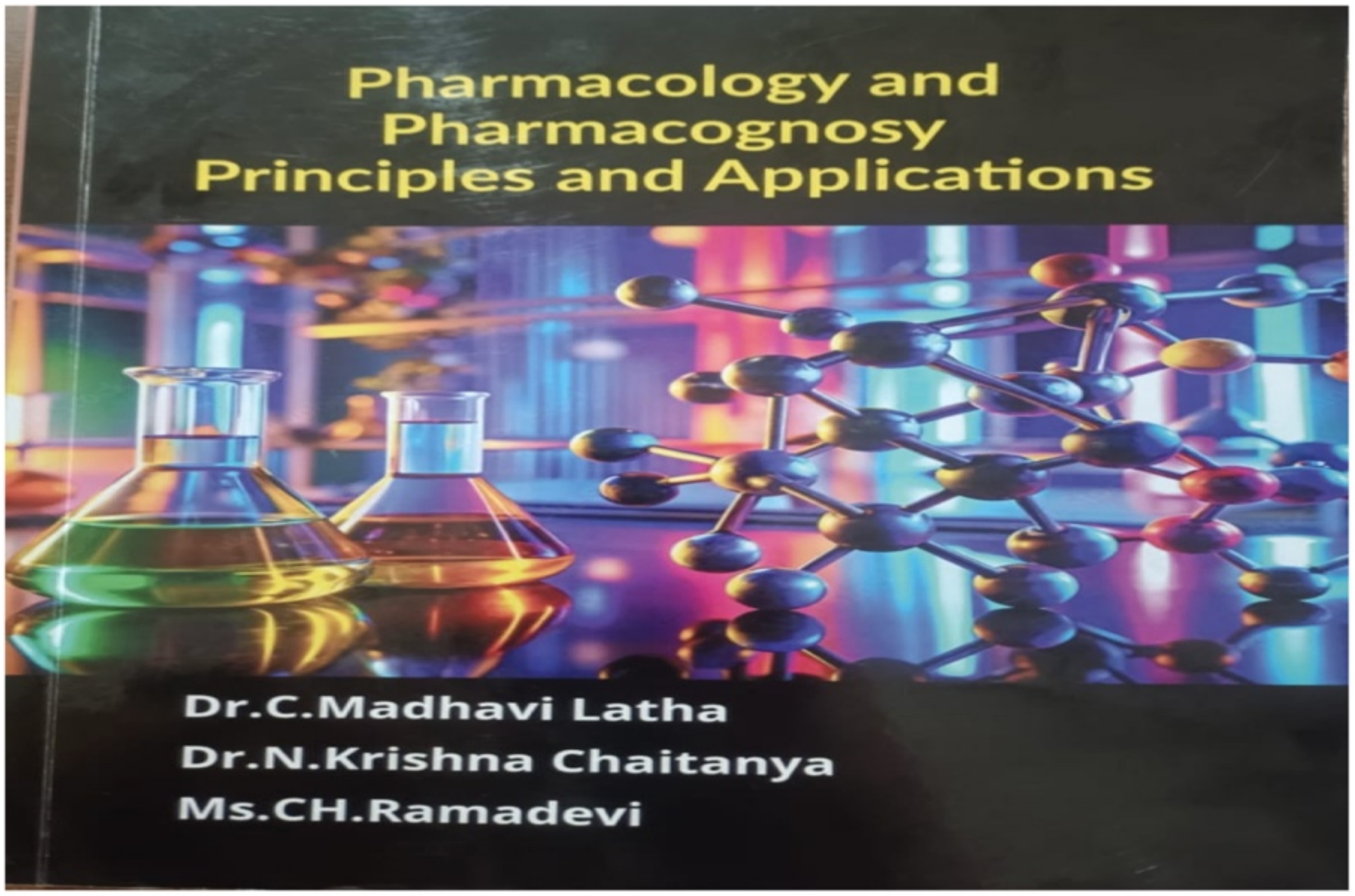

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"Pharmacology and Pharmacognosy Principles and Applications" is a comprehensive guide exploring the fundamentals of drug action, sources, and therapeutic mechanisms alongside traditional and modern medicine. This book is covering 46 chapters written by various authors that covers biologics, gene therapy, nanopharmacology, pharmacogenomics, and drug-receptor interactions, while also highlighting herbal medicine, marine chemistry, toxicology, and ethnopharmacology. The book discusses clinical trials, pharmacovigilance, adverse drug reactions, and personalized medicine, bridging pharmaceutical advancements with natural therapeutics. With insights into synthetic vaccines, biotransformation, and alternative medicine systems like homeopathy and naturopathy, this resource is essential for students, researchers, and professionals in pharmaceutical sciences.

About Authors

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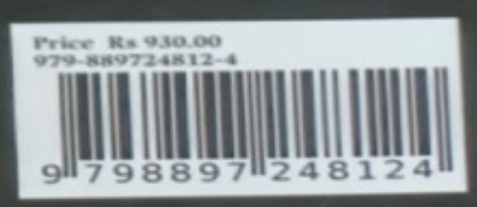

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CHAPTER-1

INTRODUCTION TO PHARMACOLOGY

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Abstract: Pharmacology principles provide the fundamental knowledge that supports medical practitioners' clinical and research responsibilities. The purpose of this article is to improve knowledge of pharmacologic concepts that are pertinent to medicine. The fundamental ideas, terms, and concepts of pharmacodynamics will be expanded upon in this article. This essay will specifically address the fundamental ideas of pharmacokinetics. In this article increasingly in need of a deeper comprehension of pharmacological concepts. Furthermore, pharmacology foundations can offer a crucial comprehension of the ideas behind quantitative methods (pharmacokinetics, for example). The purpose of this essay, the first of a planned series, is to improve knowledge of pharmacologic concepts related to different branches of pharmacology. Building on the pharmacodynamic principles explored in this article, this article will address pharmacokinetics and the relationship between pharmacokinetics and pharmacodynamics. It will also cover the introductory concepts, terminology, and principles that serve as the foundation for the concepts to be covered in the article to comprehend the pharmacological aspects of drug action, safety, and receptor.

Keywords: drug action; drug safety; pharmacokinetic;pharmacodynamics; pharmacology; receptors.

1. Introduction

Pharmacology studies how drugs function, how they impact living systems, and how they interact with living systems. Pharmacology encompasses both legal and illicit drugs, natural and synthetic compounds, prescription and over-the-counter medications, exogenous (produced inside the body) and endogenous (sourced from outside the body) drugs, and drugs that have either a beneficial or harmful effect, or both. The two primary subfields of pharmacology are pharmacodynamics and pharmacokinetics. It should be mentioned, nevertheless, that pharmacogenetics, pharmacogenomics, pharmacoepidemiology, pharmacoeconomics, and pharmacovigilance are also included in certain publications. Pharmacology has experienced a significant transformation since the mid-1900s, progressing from describing the effects of drugs to understanding their mechanisms [1]

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