

# 'छप्पर' की दुनिया

मूल्यांकन और अवदान

(हिन्दी का पहला दलित उपन्यास)

सम्पादक

डॉ. नामदेव • डॉ. नीलम





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## Advances and Avenues in the Development of Novel Carriers for Bioactives and Biological Agents

Book • 2020

Edited by:

Manju Rawat Singh, Deependra Singh, ... Nagendra Singh Chauhan



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Vijay Kumar, Jagat R. Kanwar and Anita Kamra Verma

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## Abstract

Rheumatoid arthritis (RA) is universal and needs no explanation, yet its pathogenesis has not been entirely elucidated, resulting in no cure to date. It is an autoimmune and inflammatory ailment characterized by progressive bone and cartilage obliteration. The existing nontargeted therapeutic approaches for RA are no longer holistic and often lead to overmedication resulting in adverse side effects. This has led to the development of targeted stimuli-sensitive drug delivery for RA. Activated macrophages release many inflammatory cytokines and chemokines that cause destruction to cartilage, bone, and tissue. Existing clinical RA treatments have severe limitations owing to increased doses, recurrent administration, and adverse effects. These drawbacks have inspired incredible development of research of nanomedicines in RA therapy. The review gives insights on the pioneering enhancement in nanomedicines for RA treatment. Herein, we discuss role of chitosan nanoparticles, including strategies for active targeting by nanoparticles and ligand mediated interaction. The review focuses on the cellular pathogenesis, role of cytokines, antioxidants, and biotherapeutics in management of RA. Advanced mechanism of how pathophysiology triggers the deterioration of RA in patients urgently needs to be deliberated upon with a view to developing remedies to enhance patient compliance and effectively finding a cure for patients at every stage of the disease.

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## About the book

### Description

*Advances and Avenues in the Development of Novel Carriers for Bioactives and Biological Agents* provides sound data on the utility of biological and plant-based drugs and describes challenges faced in all aspects offering indispensable strategies to use in the development of bioactive medicines. Bioactive based medications are commonly used throughout the

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### Key Features

Advances information on various bioactive based medications, their sources, clinical consequences and transport strategies

Illustrates diverse transport systems for bioactives and derivatives. novel techniques for formulations. targeting

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# **BIOLOGY**



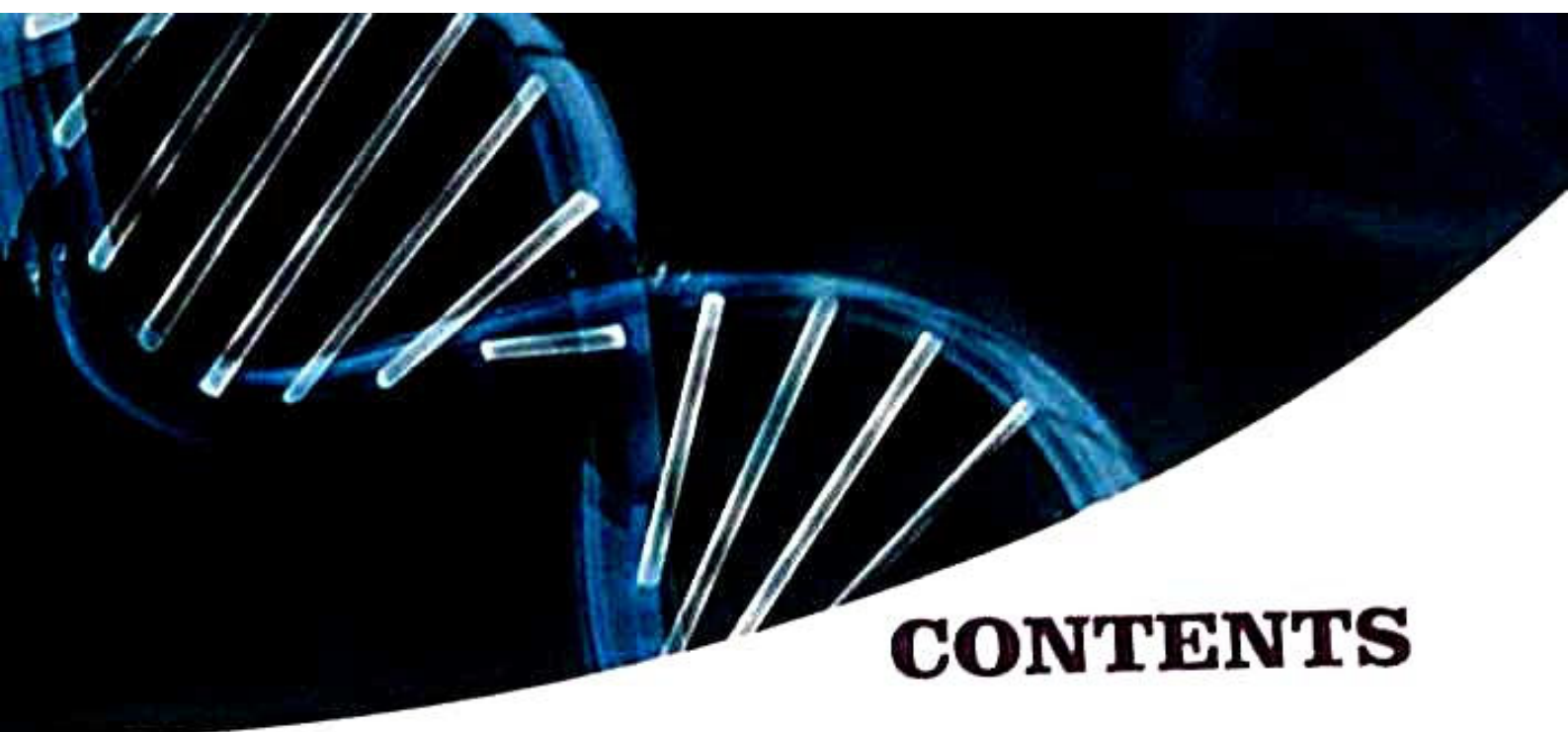
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UNITEXT FOR FRESHMEN:

# BIOLOGY

## ABOUT THE BOOK

This book is with the perfect amount of content for an introductory, biology and non biology courses. Purpose of this book is to explain basic concepts of Life sciences in simple language. The undergraduate students who are taught Life sciences in various semesters will be enriched knowledge by this book. All the major units are covered without excessive detail and organized in a logical manner from microscopic to macroscopic. Origin of life, biological evolution, cell structure and function, cell organelles, Laws of Thermodynamics, Enzymes, Transport of ions across cell membranes, Genetics, Molecular Biology, Evolution, Infectious diseases, Ecology, Ecosystem, Conservation of Natural Resources, Bacteria, Virus, Fungi and diseases caused by them has been explained. In a chapter classification of plants and animals has been described in a simple manner. Even Respiration, Photosynthesis and its types are explained in a lucid manner. Latest developments in the field of Life sciences have been mentioned, and the book gives the holistic picture in field of Life sciences.

## ABOUT THE AUTHOR

Dr. Rajni Chandra is teaching in the Department of Botany, Keshavnagar college, University of Delhi, Delhi. She got her M.Sc and PhD from Agr College Agr. She did Post Doctoral work in the Department of Botany, University of Delhi, Delhi with Prof. K.S. Malhotra. She has worked in the field of Mycoloxins, Mycoherbicides and VAM fungi. She worked on Association of VAM fungi in bear plants of Uttaranchal. She also worked on Phytoremediation of heavy metals present in soil by angiosperms. She has published more than 45 Research papers in different National and International repute journals. She has edited "Advances in Microbial Biotechnology", "Technology Past Present and Future", She has authored "The Fungi", "Microbial Technology", "Control Microbial Biotechnology". Other is under publication in field of plant pathology.



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# ADVANCES IN METALLODRUGS

Preparation *and* Applications *in*  
Medicinal Chemistry

Edited by  
Shahid-ul-Islam,  
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# **Advances in Metallodrugs**

## **Preparation and Applications in Medicinal Chemistry**

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# Role of Metallodrugs in Medicinal Inorganic Chemistry

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## **Abstract**

Over the past decades, metals and metal-based drugs were significantly used in the treatment of several diseases but it cannot be a clear distinction between the toxic doses and the therapeutic which is a major challenge. Metal ions are required for many critical functions in humans. The medicinal uses of metal-based drugs are of increasing clinical and commercial importance. With the discovery of cisplatin in 1960 by *Barnett Rosenberg*, the study in these areas has been expanded exponentially but the use of transition metal-based compounds other than platinum has also attracted attention. However, the efficacy of platinum-based drugs is extremely affected by serious systemic toxicities and drug resistance. The affinity of given metallodrugs is to interact with DNA that has been measured as a function of the decrease of guanine oxidation signal on a DNA electrochemical biosensor. In this chapter, the potential activities of metallodrugs to described and representative examples from the most recent families of metal-based compounds are discussed with respect to their possible mode of action and most probable biomolecular targets. We seek to give an overview of the cytotoxic effect of metallodrugs and also focus on metal complexes of platinum, copper, and zinc with an emphasis on the new strategies used in the development of more and newly designed metal complexes and their biological applications.

**Keywords:** Metals, Pt-complexes, Cu-complexes, Zn-complexes, DNA, cytotoxicity

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# भारत नेपाल संबंध

सांस्कृतिक परिप्रेक्ष्य में



संपादक  
डॉ. केवल कृष्ण मल्होत्रा

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Rouf Ahmad Bhat  
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Moonisa Aslam Dervash *Editors*

# Bioremediation and Biotechnology, Vol 2

Degradation of Pesticides and Heavy  
Metals

 Springer

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# Chapter 2

## Ecotoxicology of Heavy Metals: Sources, Effects and Toxicity



Maya Verma

### 2.1 Introduction

Environmental pollution is considered as a biggest challenge for whole world, mainly in developing countries. Though produced by anthropogenic activities, it has deleterious effects on environment and its resources. Aquatic habitats, mainly freshwater ecosystems are more prone to pollution as compared with others. Within limits, aquatic ecosystem can cope with pollution, but in severity its get reflected in community structure of flora and fauna. HMs play an important role in environmental pollution. Being toxic and persistent in nature, they are a major threat to the world and of course are of serious concern.

HMs' natural sources include weathering of rocks and volcanic eruptions. Mining, agricultural applications (pesticides, fertilizers especially phosphate fertilizers), industrial emissions come under anthropogenic sources. Being persistent in nature, they pose threats to food chains in ecosystem. Due to their toxic nature, they are also responsible for different health problems. HMs above threshold range heavily affect rhizosphere and reduce soil fertility. In an aquatic ecosystem, bioaccumulation of HMs creates adverse effect on aquatic animals.

HMs are those chemical elements which have density greater than  $5 \text{ g/cm}^3$ . They are also called trace elements. The toxic HMs commonly present in wastewaters are Hg, Cd, Cr, Pb, As, Cu, Ni, etc. The continuous release of HMs into water bodies creates many environmental problems. Their existence and amplification in environment is an outcome of natural and anthropogenic activities such as urbanization, industrial wastes, etc. Adverse effects of HMs on plants include reduction in seed germination rate and lipid content by cadmium, decreased plant growth and enzymatic activity by chromium, inhibition of photosynthesis by copper and mercury, reduction of chlorophyll production by lead (Gardea-Torresdey et al. 2005).

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