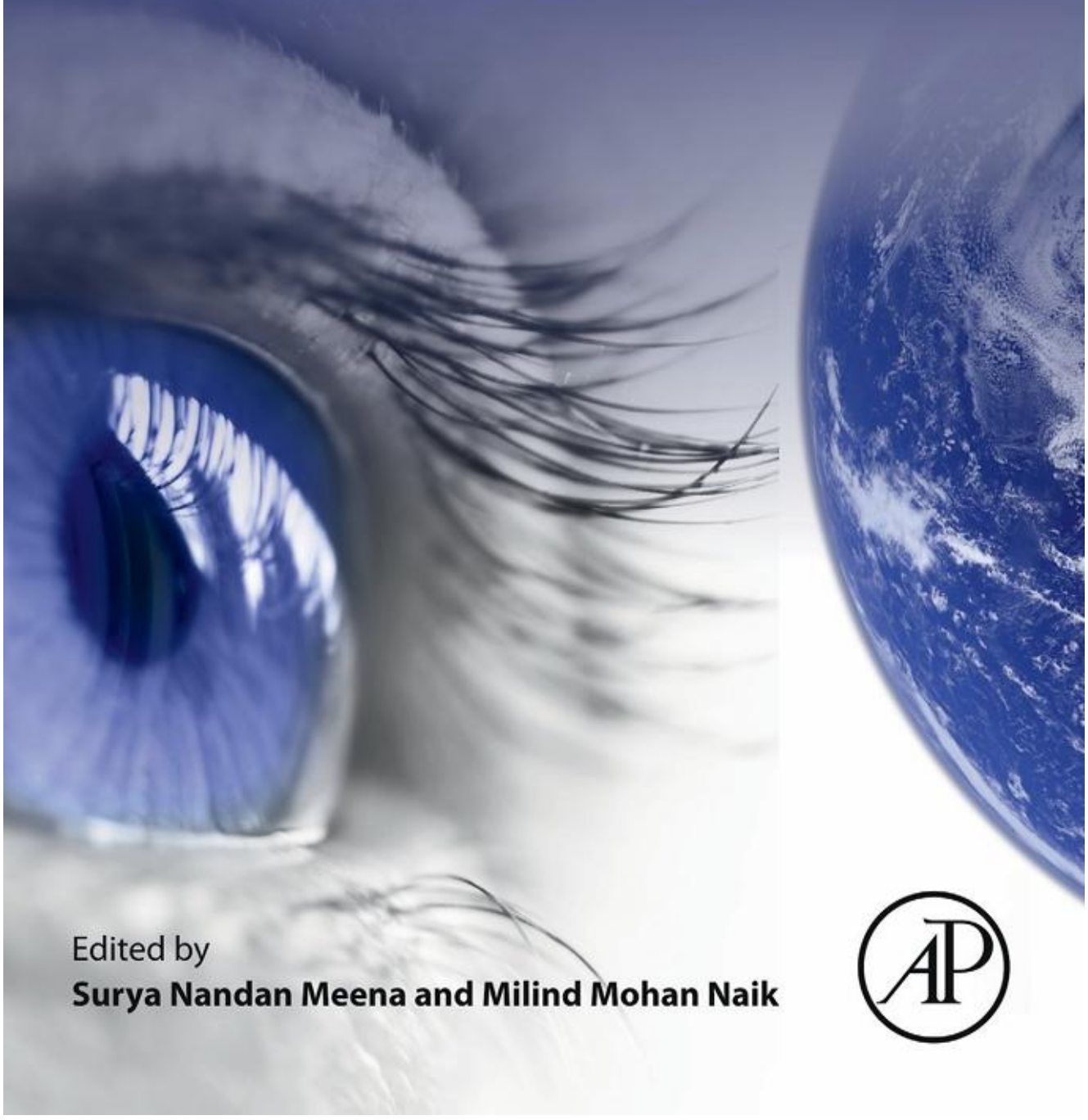
# Advances in Biological Science Research

## A Practical Approach



Edited by
**Surya Nandan Meena and Milind Mohan Naik**

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## A Practical Approach

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Chapter 24

# Analytical methods for natural products isolation: principles and applications

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## 24.1 Introduction

Natural products extracted from natural sources were found to display impressive therapeutic potential, some of which have been utilized in traditional as well as modern medicines [1]. These chemicals are known as secondary metabolites, which are synthesized biochemically by plants, microbes, marine animals, insects, and amphibians for their survival [2]. In recent years, marine organisms and associated microbes have been established as a good source of novel structural skeletons/new medicines for treatment of different diseases [3,4]. Marine organisms like sponges and corals synthesize various chemicals to: (1) defend themselves against predators; (2) prevent other animals from moving into their space; (3) find a mate; and, (4) protect themselves from infections [5]. The biodiversity of the oceans is reflected in their chemo diversity, which shows the potential of marine organisms for isolation of novel drugs. However, much of these sources remain unexplored to date and hence this opens the door for young researchers to undertake projects in this interesting research area [6]. With less than 1% of the marine microbial world being explored to date, the modernization in cultivation and extractions from marine habitat has offered access to an unexplored basin of genetic and metabolic diversity [7]. Moreover, the advances in chromatographic and spectroscopic techniques, especially in high performance liquid chromatography (HPLC), tandem mass spectrometry and their hyphenation, have made isolation, purification, and characterization of biologically active molecules much easier and quicker.

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