Preface

Fungi are cryptic, understudied and hyperdiverse organisms. Fungi are poorly documented organisms and the phylogenetic relationships within the kingdom are not yet fully understood, but recent efforts have been shedding light on the evolutionary history of the Fungi. Fungi have been known and used by humans for centuries, but mycology traces beginnings to the 18th century, with the development of the microscope. While much has been discovered since then, fungi remain today a cryptic and understudied group of organisms. The tools of molecular biology and genomics can help us meet this challenge. Over the past decades, genomics, and genome sequencing in particular, have emerged as powerful tools for biological research. In the last few years, due to the introduction of the next-generation sequencing (NGS) technologies, these tools went through dramatic transformations.

Ecological Genomics of Fungi brings together studies related to pathogenic fungi, fungal biology, and all other aspects of fungal research. It covers a broad diversity of fungal systems and provides unique insight into the functions of those fungi in various ecosystems – from soil, to plant, to human. It also discusses tools, applications, and the most recent developments available to explore the biology of soil fungi at the molecular level. This book addresses the wonders of fungal diversity, including recent advances on the understanding of the evolution of the kingdom Fungi, approaches to documenting and interpreting fungal diversity, and current efforts concerning fungal conservation. The book also includes investigations of fungi and their traditional allies that relate structure and function to growth, reproduction, morphogenesis, differentiation, its role as pathogen and parasites, its applications in various fields like industry and agriculture and medicinal uses.