

Preface

Can common people enjoy a healthy life in this world which is permeated with unhealthy food? Can patients afflicted with Parkinson's disease, diabetes, and cancer be given a better and less stressful quality of life? The chapters of this book support an affirmative answer: natural products should be promoted among the top tips in addition to a beneficial diet accompanied by ample physical exercise. The past few decades have witnessed a phenomenal growth in the interest, knowledge, and application of herbal/specialty diet supplements and alternative medicine. The various health benefits of natural components have been corroborated by modern science as evidenced by the voluminous research publications and a long list of drugs with anticancer and other health benefits approved by the US FDA and similar agencies. It is high time to gather together reviews of selected promising bioactive natural compounds.

This book is divided into eight parts, each with a different emphasis. Part I describes medicinal lectins of mammalian, marine, and plant origins. Professor Nathan Sharon, one of the pioneers on lectin research, passed away in 2011, and Prof. Jeremiah Silbert at Harvard University has kindly written a biography in memory of the renowned lectinologist. Some precious materials translated from Prof. Sharon's memoirs written by himself will not only unveil his early days on lectin research but also inspire young scientists. Additionally, we are honored to include two chapters on the history and characteristics of mammalian lectins from Prof. Hans-Joachim Gabius's book 'The Sugar Code: Fundamentals of Glycosciences'. Furthermore, the chapter on marine lectins written by Prof. Koji Muramoto and colleagues expands the scope of bioactive lectins to the ocean. A collection of promising lectins from plants is also included.

Part II contains two chapters which focus on the biochemical characteristics and antitumor activity of plant nucleases and the bovine seminal ribonuclease. They are contributed by Dr. Tomas Podzimek, and Prof. Delia Picone and coworkers, respectively. Part III concentrates on the antitumor and anti-viral activities of ribosome inactivating proteins (RIPs). As the first reporter of the anti-HIV and antitumor protein MAP30 from bitter melon (*Momordica charantia*), Prof. Sylvia Lee-Huang has written a chapter providing readers a complete story of this multifunctional protein. Additionally in Part III, the chapters by Prof. Jose M. Ferreras, Prof. Maria S. Fabbrini, and their colleagues, succinctly review the

work on other promising RIPs. Part IV is dedicated to protease inhibitors. Prof. Ann Kennedy shares her expert opinion on the health benefits of the Bowman-Birk inhibitor concentrate and its commercial production. Prof. Krzysztof Rolka and his colleagues give a comprehensive account of the classification, biochemical characterization, and medicinal applications of plant serine protease inhibitors. Furthermore, as described by Prof. Kenei Furukawa and coworkers, synthetic serine protease inhibitors also exhibit promising clinical applications. Some of the other medicinal protease inhibitors are covered in other chapters of Part IV.

Small compounds are in the limelight in Part V which contains the largest number of chapters. Autophagy is at the forefront of our knowledge. The chapter by Prof. David Rubinsztein unveils the potential treatment of neurodegenerative diseases by employing different autophagy-inducing compounds. Among them, rapamycin (the mTOR inhibitor) has received growing attention due to its promising clinical applications, and in the next chapter please enjoy a rapamycin panorama by Dr. Morten Scheibye-Knudsen. Prof. Betty Schwartz and colleagues provide an interesting story about the medicinal applications of mushroom polysaccharides. Furthermore, the antitumor activity of essential oil constituents is underlined by Prof. Daniel Bezerra and coworkers. We thank Prof. Victor Preedy at King's College London and his colleagues Dr. Roshanna Rajendram and Prof. Rajkumar Rajendram for their highly informative chapter on acetaldehyde to alert the general public to the potential adverse effects of this aldehyde.

In view of the fact that most of the above-mentioned chapters are focused on single compounds, with our long-term collaborators, we tried to focus on multifarious medicinal components in one target in Part VI and give a bird's-eye view of a mushroom, a fruit, an insect, and other drug candidates. For instance, there is a spectacular array of medicinal compounds in both *Cordyceps sinensis* and bitter melon, and the diverse medicinal activities have been enumerated in their respective chapters. To highlight the importance of the latter, Ms. Michelle Sanzi Kermes, a famed Baltimore artist, was invited to depict the bitter melon in her creative and impressive drawing which is located ahead of the Table of Contents.

Ethnomedicine often travelled from reality to mythology in the ancient days. With the long history of its practice and the accumulation of experimental results from laboratories from all over the world, some aspects of ethnomedicine have been corroborated and a scientific basis for ethnomedicine has emerged. In this book, traditional Chinese medicine (TCM) is used as a window to facilitate understanding of the modernization of ethnomedicine. Prof. Rudolf Bauer and other GP-TCM board members share with us their experience in the function of 'Good Practice in Traditional Chinese Medicine (GP-TCM) Research in the Post-genomic Era' associated with clinical applications in the European Union. In addition, the chapter on high-throughput screening of TCM by Prof. Y. H. Wong and his colleagues offers fresh perspectives on ways to elevate the efficiency of drug screening from different TCM materials. In Part VIII which constitutes the finale, some remaining questions are raised and the future perspectives of natural compounds are highlighted.

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