

PREFACE

The purpose of this book is to provide an overall and updated information, if not specific, of the topic on snails diversity, snail biology and snail behaviours.

Out of the 10 chapters this book, the first chapters belong to biodiversity, Chapters 4, 5 and 6 concerns about the snail behaviours ranging from sensitivity to metal exposure, effects of botanical pesticides to neural activity patterns. Whereas Chapters 7 to 10 are considered environmental biomonitoring but biological based interpretation papers. Since all chapters included some fundamental biology (in understanding the biodiversity, behaviours, ecology and ecotoxicology), all papers have most coverage (if not 100%) of biology, biodiversity and behaviours of the snails. Therefore, I think all the chapters of this book generally reflects the topic of this interesting book.

All chapters of this paper have been written and prepared by true researchers in their respective field of specialization. For example, Dr. Brodie (University of the South Pacific, Fiji Islands) has done a lot of good interesting research about snail biodiversity in Fuji Islands ecoregion (Chapter 1). Dr. Sharifinia (Hormozgan University, Iran) has published a lot of papers on molluscs from Iran and therefore he is the best candidate to write a review about the marine snails in Iranian waters of the Persian Gulf and Oman Sea (Chapter 3). Dr. Latip (University Teknologi MARA, Malaysia) is an expert in the study of snail behaviours in response to indigenous plant extracts as botanical pesticides in the paddy field (Chapter 5). Dr. Saito (Nihon University, Japan) specialized in the diversity of behavioral neuronal activity patterns in the snails (Chapter 6).

Chapter 1 presented the values of a wide spectrum of snail biodiversity. This chapter will bring the readers about the prestige, innovation and commercial values of the interesting snails. This chapter highlighted a snap shot of information on the value of snails in relation to food and medicine, their use by traditional indigenous cultures in addition to their considerable significance with regards to biodiversity, and the current extinction rate of snails on tropical islands.

Chapter 2 reviewed snail biodiversity based on 45 reported publications, from 1991 until 2016, covering most ecoregions in the literature. All information has been reviewed

and put in a single Table for the ease of readership and the authors gave their comments on each paper reviewed. All commentaries can only be found in this chapter.

Chapter 3 also reviewed current geographical distribution of marine snails along the Iranian waters of the Persian Gulf and Oman Sea, based on 42 publications. The exclusive review information from the Iranian waters is considered updated one which is not included in Chapter 2.

Chapter 4 presented the toxicity test of Cd and Cu by using two different sized groups of *Pomacea insularum* as a test organism, with mortality as an endpoint. The chapter has provided important baseline information for Cd and Cu toxicities using *P. insularum* as a test organism which enables the comparison of the acute sensitivity of *P. insularum* towards Cd and Cu with other marine invertebrates.

Chapter 5 presented methanol extracts of *Carica papaya* and *Cymbopogon citratus* were more susceptible to be used as botanical pesticides for controlling golden apple snail (GAS) and ethanol extracts of *Artocarpus integer* have potential to be used as an agent for repellency towards GAS.

Chapter 6 presented Dr. Saito's several reviewed studies, and gave a comprehensive overview of the function of nervous system as well as individual neurons in the snail the pond snail *Lymnaea stagnalis* can be better understood.

Chapter 7 presented the allometric data and concentrations of heavy metals in the total soft tissues of the mud-flat snail *Telescopium telescopium*. The findings would contribute to the understanding of ecological distribution and abundance of the field collected snails.

Chapter 8 reviewed and cited nickel (Ni) concentrations in total soft tissues of the mangrove snail, *Nerita lineata*, from three major publications in the literature. These Ni data were applied in the determination of human health risk assessment (HHRA) via consumption of the snails. The chapter indicated no health risk of Ni exposure through snail consumption.

Chapter 9 presented concentrations of four heavy metals in the edible snails *Cerithidea obtusa* from three selected sites in Peninsular Malaysia. Generally, higher levels of metals were found in populations with cases of higher number of shell whorls which could possibly be caused by unknown anthropogenic inputs besides natural sources with possibility of genetic polymorphism.

Chapter 10 presented concentrations of five heavy metals in five taxa of intertidal snails. One of the conclusions of the chapter is that these metal accumulations in the soft tissues and shells shed lights on effective management of marine ecosystem in future studies.

I have a good experience in editing all the chapters in this book. I definitely learned a lot in reading all the chapters. Lastly, I sincerely thank Nova Science Publishers for giving me this opportunity to serve an editor of this interesting book, and for extending the period of deadline in sending the final version of all chapters. My special thanks also

to all the corresponding authors of all chapters in this book because of their kind cooperation, and positive responses.

Good luck and have a pleasant reading!

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Scopus URL: <https://www.scopus.com/authid/detail.uri?authorId=57007806600> (Total papers indexed in Scopus= 176; H-index= 21; Total citations> 1579, as on 2 February 2017)

THE VALUE OF SNAIJS: PRESTIGE AND INNOVATION BEYOND AMAZING BIODIVERSITY

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ABSTRACT

Many people from all walks of life have observed, utilized and investigated snails for thousands of years. These human activities have explored snails in the context of freshwater and on land because snails are one of the few animal groups that have successfully diversified and adapted to exploit an array of these moist environments. Countless numbers of people have interacted with snails from a variety of perspectives. They were either glad to eat, previously useful or biologically fascinating. The snail's body parts are well illustrated by the production of pain killers, many other medicines, and adapting from shell holes and by the human manufacture of a wide range of products and shell shell forms. The fact is, snails can be found almost everywhere, from the tropics to the poles, from the bottom of the sea to the tops of mountains, and throughout the world. In the early days, snails were eaten from all walks of life. Snails are also used in agriculture, ornamental, and as a critical part of the life cycle of many other organisms. In the past, snails were used in the production of many other products, including diverse invertebrate species, and during the course of our planet's history, and to the present, snails have been used in many other ways. The importance of snails in the world is considerable, and their role in the world is also significant. The importance of snails in the world is also significant, and their role in the world is also significant. The importance of snails in the world is also significant, and their role in the world is also significant.