

BRYOPHYTES: COLLECTION, PRESERVATION AND IDENTIFICATION

(Reference to Nepal)



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AND IDENTIFICATION**
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1. *Riccia fluitans* L.
2. *Anthoceros punctatus* L.
3. *Metzgeria conjugata* Lindb.
4. *Bryum* moss on exposed cemented wall

Back cover page: Photograph

Marchantia polymorpha L.

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PREFACE

This work is the outcome of 35 years of my study conducted at different geographical regions of the country. A vast area of the country still remains unknown for bryophytes specially the remote parts of the far-west Himalayas. Study in these areas can be expected to bring my more species to add to the current list of 1215 species of this plant hitherto. This book has been expected to provide essential knowledge and make easy access for identification of bryophytes found in Nepal.

Historical works on this plant were done by few international researchers and their publications still remain as main sources for references and identification work. In the present context, many students have shown their interest and enthusiasm to study bryophytes of this country but a relevant guide book for them is still lacking. With this consideration, I planned to share my three decades of research in the form of this book which can be useful to many students and all those who are interested on this plant.

The species representation from every family is given with hand sketching, keys and relevant description essential for identification work. Some colored photographs of different species and habitat types have also been included in this book.

I am highly acknowledged to my respectful Professor Dr. Sanu Devi Joshi who was also my Ph.D supervisor for her inspiration and timely help. I am thankful to Prof. Dr. Krishna Kumar Shrestha for his valuable suggestions to my work on bryophytes. Similarly, Dr. David G. Long of Royal Botanic Garden of UK is highly acknowledged for providing me various books and literatures concerning my research on bryophytes.

I take this great opportunity to thank all the personalities whose

help and cooperation was very significant to complete this book successfully. I would like to convey my sincere thanks to Mr. Sanjeev Kumar Rai, Director General of the Department of Plant Resources who suggested me to bring out this book under the sponsorship of the Department of Plant Resources. I take this as a great honor to my long term research on Bryophytes of Nepal. I would like to express my thanks to Mr. Mohan Dev Joshi, Deputy Director General of the Department of Plant Resources as well Mr. Subhash Khatri, Chief, National Herbarium and Plant Laboratory, Godawari for their coordination. Ms. Pratiksha Shrestha, Scientific officer, Department of Plant Resources is acknowledged for her timely information and essential help during preparatory period of this work.

I am thankful to Mr. Rajesh Tamang, Garden officer, National Botanical Garden, Godawari and Mr. Amin Pun (Botanist) for their significant help during my field program in Sindhupalchok District of central Nepal.

I would like to thank to Prof. Dr. Dharma Raj Dangol, Chief of the Natural History Museum who provided me all the essential facilities required to complete this work. My thanks are also due to Ms. Ranju Shrestha of Natural History Museum for her accompaniment in my field study programs carried out at different areas of Kathmandu. Finally, my thanks are due to Ms. Hira Shova Shrestha (botanist), Mr. Madan Krishna Shrestha (zoologist), Ms. Sanam Prajapati (botanist), Ms. Suprava Shrestha (botanist), Ms. Preesti Dangol (botanist) and Ms. Sushila Sharma (botanist) for their company in the field which was conducted at different places of central Nepal.

Finally, I would like to thank Mr. Damodar Man Pradhan, my husband for his kind cooperation in my work.

Nirmala Pradhan

Foreword

The Department of Plant Resources is dedicated to the field survey, exploration of plant resources, their ex situ and in situ conservation, developing cultivation techniques of medicinal and aromatic plants and plant product certification. In this regard the department has published several books and journal articles on various disciplines of the plants. The department has published many books on local flora and medicinal plants of Nepal. However, most of the publications have focused on the flowering plants of Nepal. Very few books have been published on the cryptomagic flora even though they are equally important as the plant resources of Nepal. This volume aims to fulfill the gap on the such less explored group of plants. Bryophyte includes simplest and oldest of land plants of which many are amphibious and love damp, shady places. There are all together 960 genera and 20,000 species of bryophytes found in worldwide. And altogether 1215 species of bryophytes are reported in Nepal. They play an important role in succession and are found in many vegetation types. This book contains information about collection of different species of bryophytes found in different geographical regions of Nepal; its preservation and identification techniques. Besides this, it also contains species representation from every family of bryophytes given with hand sketching, keys and relevant description essential for identification which will ultimately help to enhance bryological research in Nepal. The book is expected to be useful for all the conservationists, researchers, students, teachers and people who are interested in this topic.

I would like to express my special thanks to Prof. Dr. Nirmala Pradhan for collaborating with the department and contributing the manuscript of this book which contains her long experience of research on bryophytes. I am grateful to Ms. Jyoti Joshi Bhatta and Mr. Mohan Dev Joshi, Deputy Director Generals of Department of Plant Resources for their support. I would also like to thank Mr. Subhash Khatri, Chief, National Herbarium and Plant Laboratories and Ms. Pratiksha Shrestha, Scientific Officer, Department of Plant Resources for their help and suggestions to improve the manuscript as well as manage the publication. I would also express my thanks to all for their effort to generate this book. I am grateful to M.S. Printing for printing.

Sanjeev Kumar Rai
Director General

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Prof. Dr. Nirmala Pradhan has been working as a bryologist for about four decades. She worked for Natural History Museum of Tribhuvan University for more than three and half decades. She made a significant contribution in establishing a bryophyte section in Natural History Museum and addition of several new records of Bryophytes to the country's list. She authored a book on Materials for a Checklist of Bryophytes of Nepal and published more than three dozens of research papers on bryophytes of Nepal in various National and International Journals. She has been honored with different valuable awards like, Nepal VidyaBhusan, Best Teacher's Award of Tribhuvan University, National Education Award of GoN and International Association of Bryophytes Conservation Award, Chicago, USA,2018. She worked as coordinator and investigator in various National and International projects and has visited many remote areas and Himalayan regions of the country in connection to her research concern.



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