3.2.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during the year

3.2.2.1 Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings during the year

Sr. No	Name of the teacher.	Title of the book/ chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	Year of publication	ISBN/ISSN Number of the proceeding	Affiliation Institute at the time of publication	Name of the publisher
1	Dr. N. V. Harney	Freshwater Ecology				National	2020	ISBN 978-81-945828-3-0	Nilkanthrao Shinde Science and Arts College, Bhadrawati Dist. Chandrapur	R. P. Publications, Delhi
2	Dr. N. V. Harney	Macrophyte Diversity of Walni Lake near Chandrapur, Maharashtra				National	2021	ISBN: 978-93-88854-71-9	Nilkanthrao Shinde Science and Arts College, Bhadrawati Dist. Chandrapur	Discovery Publishing House
3	Luldip Bhongale		Double-Dopant induced local structural changes and ionic conductivity of doped cera system: As solid electrolytes for electrochemical devices		AIP Conference Proceedings	National	2020		Nilkanthrao Shinde Science and Arts College, Bhadrawati Dist. Chandrapur	AIP Publishing

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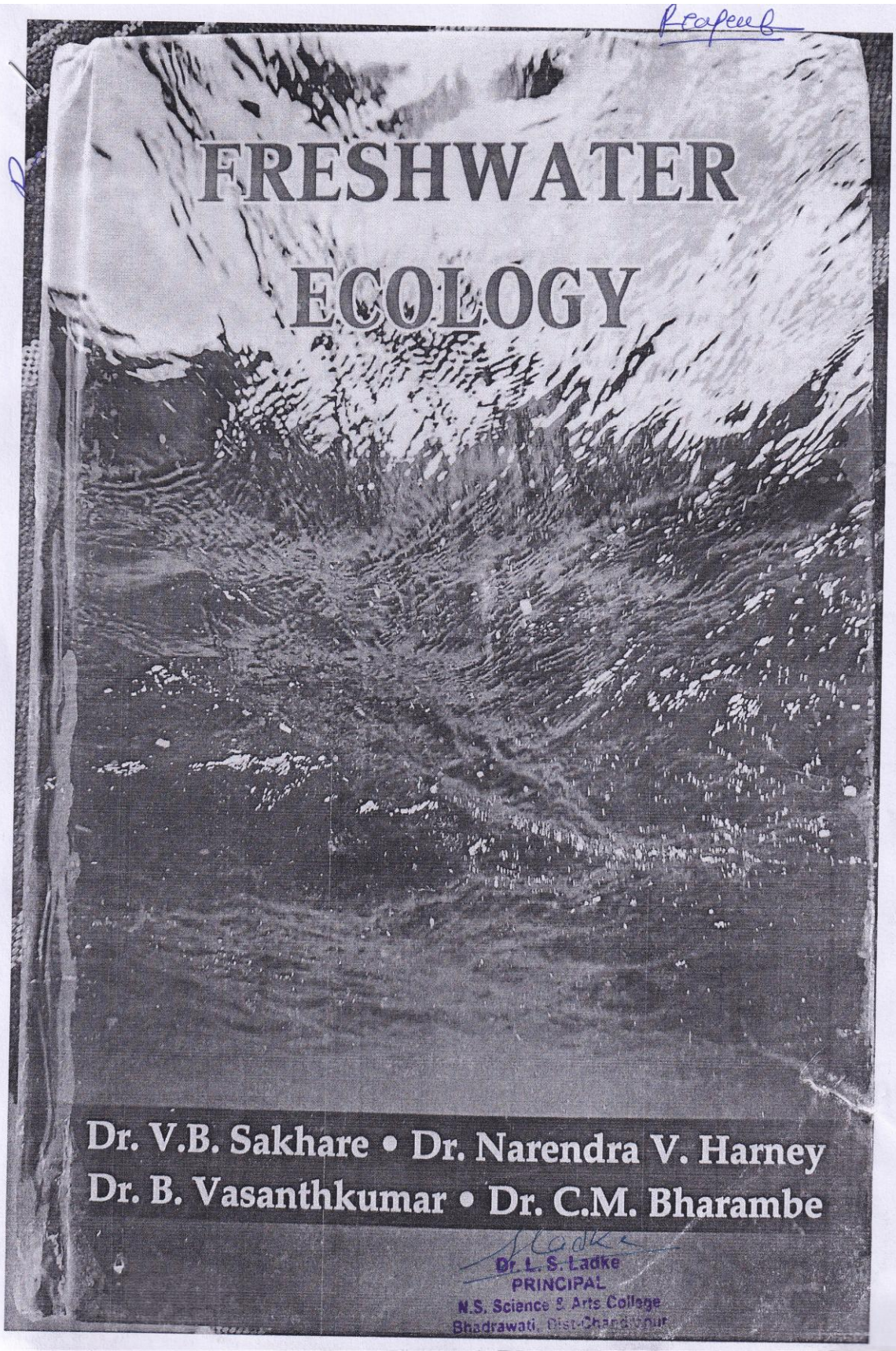

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Dr. V.B. Sakhare • Dr. Narendra V. Harney
Dr. B. Vasanthkumar • Dr. C.M. Bharambe

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ABOUT THE BOOK

Freshwater ecology is the study of different aspects of the ecology of aquatic systems, including rivers, streams, lakes and ponds. It includes the community ecology of these ecosystems, as well as ecosystem processes.

The present book 'Freshwater Ecology' provides 12 articles on recent researches on plankton diversity, ichthyofauna, physico-chemical environment, benthic diversity, avifauna and macrophyte diversity of different freshwater ecosystems. It also highlights climate change and biodiversity.

With its application oriented and interdisciplinary approach, the book would be immensely useful to students, teachers, researchers, scientists, policy makers, environmental lawyers and others interested in Freshwater ecology and Limnology.

ABOUT THE AUTHORS

Dr. V.B. Sakhare is Professor, Post Graduate Department of Zoology, Yogeshwari Mahavidyalaya, Ambajogai. He has 21 years' experience as an outstanding teacher and researcher. He has done pioneering work in the field of Reservoir Fisheries and Limnology. Dr. Sakhare has successfully organized National Seminar on Changing Perspectives in Inland Fisheries (CPIF-2018), Workshop on Culture and Breeding of Ornamental fishes (CBOF-2017), National Workshop on Techniques of Scientific Writing (TSW-2014), National Conference on Emerging Trends in Fisheries and Aquaculture (ETFA-2012), National Conference on Current Perspectives in Limnology (NCCPL-2009) and Regional Workshop on Water Quality Assessment (Implications in Potability, Productivity and Pollution control).

Dr. Sakhare has authored/edited more than 30 books. He is a recognized post graduate teacher and research guide of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad and Solapur University, Solapur. Under his guidance four students have completed Ph.D. He has published more than 60 research articles and reviews in peer reviewed journals.

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Macrophyte Diversity of Walni Lake near Chandrapur, Maharashtra

N.V. Harney

ABSTRACT

Aquatic plants are more tending to keep afloat than their terrestrial counterparts because the freshwater has a higher density than air. It makes structural rigidity insignificant in lakes and ponds. Aquatic macrophytes play an important role in structuring communities in aquatic environments. These plants provide physical structure, increase habitat complexity and heterogeneity and affect various organisms like invertebrates, fishes and water birds. The present paper describes the diversity of macrophytes of Walni lake near Chandrapur of Maharashtra State from February 2019 to January 2020 in which 15 species belonging to 4 groups such as 6 Free floating suspended submerged, 3 Rooted floating leaves weeds, 2 Rooted submerged hydrophytes and 4 Submerged floating weeds.

Keywords: *Macrophytes diversity, Walni Lake, Maharashtra.*

INTRODUCTION

Aquatic plants are more tending to keep afloat than their terrestrial counterparts because the freshwater has a higher density than air. Its makes structural rigidity insignificant in lakes and ponds (except in the aerial stems and leaves). Aquatic plants are plants that have adapted to living in aquatic environments (saltwater or freshwater). They are also referred to as hydrophytes or macrophytes. These plants require special adaptations for living submerged in water, or at the water's surface. The most common adaptation is aerenchyma, but floating leaves and finely dissected leaves are

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Double-Dopant Induced Local Structural Changes And Ionic Conductivity Of Doped Ceria System: As Solid Electrolytes For Electrochemical Devices

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Abstract: Present study is focused on double-dopant effect on local restructuring, oxygen vacancy defect clustering and ionic conductivity of doped ceria system. As compared to single dopant double-doping gives more flexibility in tuning ionic conductivity of ceria. Singly and double-doped ceria system (viz $Ce_{0.85}Sr_{0.15}O_{2-d}$ (SRDC), $Ce_{0.85}Sm_{0.15}O_{2-d}$ (SDC) and $Ce_{0.85}Sr_{0.075}Sm_{0.075}O_{2-d}$ (SSRDC)) has been discussed. Fluorite structure is confirmed by X-ray diffraction (XRD) and data is well fitted using Rietveld refinement by Full-Prof suite. The electrical properties of all gas tight dense pellets of doped ceria system were investigated by Impedance spectroscopy at intermediate operating temperature range. Double-doped ceria system exhibits one order higher conductivity then single once. To explore dopant induced local structural changes in ceria EXAFS and RAMAN spectroscopy study has been carried out at operating temperature. Formation of defect cluster at room temperature and dissociation of oxygen vacancies from defect cluster are revealed from the spectroscopy data. Local restructuring is closely associated with oxygen vacancies dissociation and activation energy and thus ionic conductivity.

INTRODUCTION

Ceria based system have attracted a huge interest in intermediate temperature Solid oxide fuel cell (IT-SOFCs) due to high oxy ion conductivity directed by oxygen vacancy hopping mechanism [1]. The oxygen ion transport behaviour in oxy ion conductor is mainly dominated by the defect association (defect cluster) between dopant cation and oxygen vacancies. Oxy ion conductivity takes place with dissociation of oxygen vacancies from defect cluster. Among the various singly rare earth doped ceria studied Gd, Sm, and Nd showed high ionic conductivity [2-3]. Till the date some double-doped ceria based electrolyte have also been studied such as Sm-Dy, Y-Dy, Gd-y, Gd-Nd and Sm-Nd [4-6]. Literature reveals most of the work in double-doped ceria based deals with structural, compositional, optical thermal properties and ionic conductivities. There are very few attempt has been focused on, (i) The defect association of oxygen vacancies with divalent and trivalent dopants in ceria.,(ii) charge relaxation process in double-doped ceria. In present attempt, effect of different Sr based co-dopant pair on local structure of ceria studied by extended X-ray absorption fine structure (EXAFS) and Raman spectroscopy at room temperature as well as at operating temperature and its influence on association energy of defect cluster and hence its outcome on ionic conductivity studied systematically, due to close interplay between transport properties and local structures. An accurate description of the local disorder and their correlation with ionic conductivity is of utmost important for understanding the defect formation and dissociation mechanism in Sr based double-doped ceria.

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