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CRITERION 3

3.3.2. NUMBER OF BOOKS AND CHAPTERS IN EDITED VOLUMES/BOOKS PUBLISHED AND PAPERS PUBLISHED IN NATIONAL/ INTERNATIONAL CONFERENCE PROCEEDINGS PER TEACHER DURING THE YEAR

NAMES OF THE AUTHORS

PROF. (SR.) MOLLY ABRAHAM

DR. NAVDEEP THAKUR

DR. DEVINA AUCHOYBUR

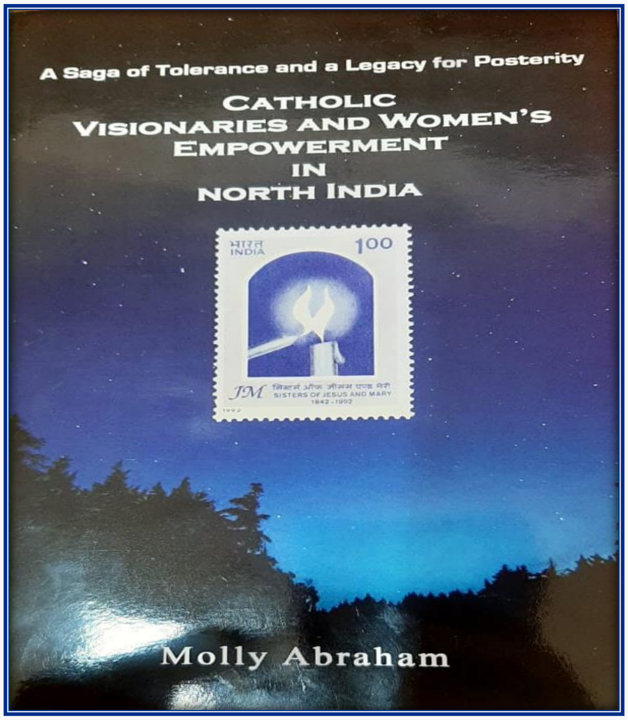
MR. MANU MAHAJAN

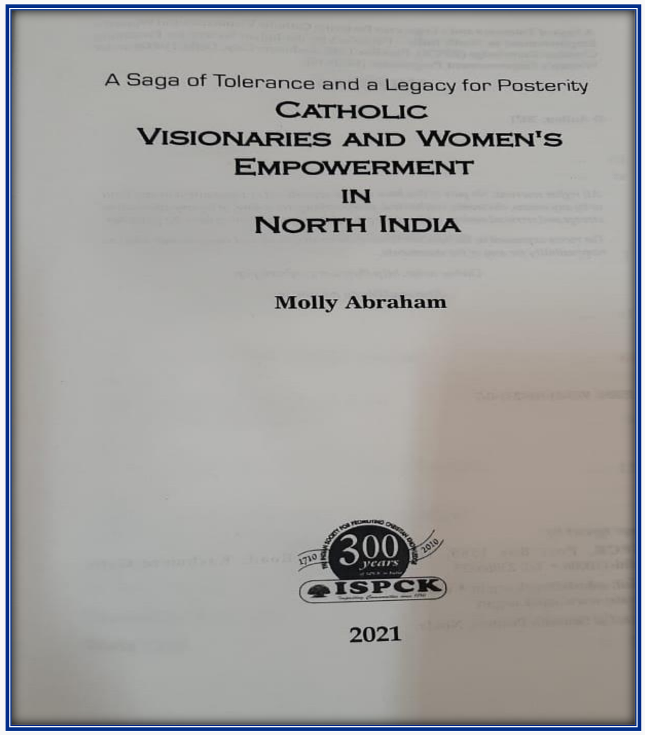
DR. DEVINA AUCHOYBUR

DR. KUSUM

St. Bede's College Shimla

1. Prof. (Sr.) Molly Abraham- Department of History
   Title of the Book: Catholic Visionaries and Women's Empowerment in North India
   Year: 2021
   ISBN: 978-81-949231-0-7




A Saga of Tolerance and a Legacy for Posterity

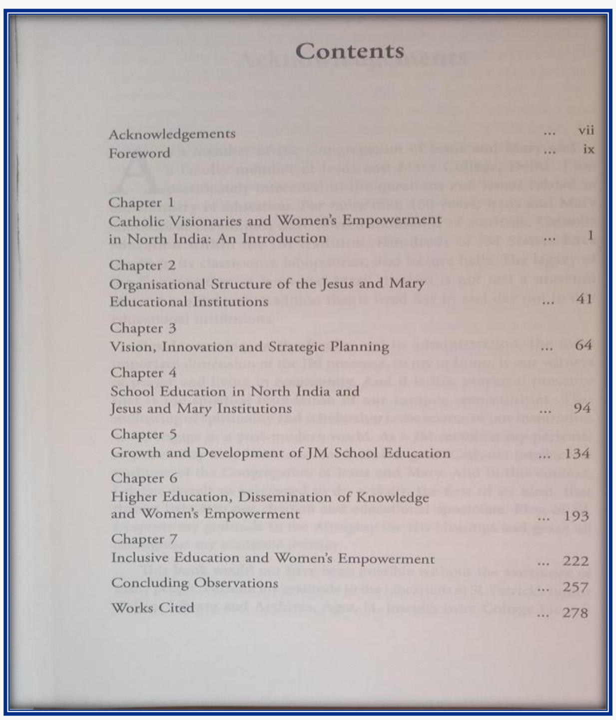
CATHOLIC VISIONARIES AND WOMEN'S EMPOWERMENT IN NORTH INDIA

Molly Abraham

300 years

ISPCK

2021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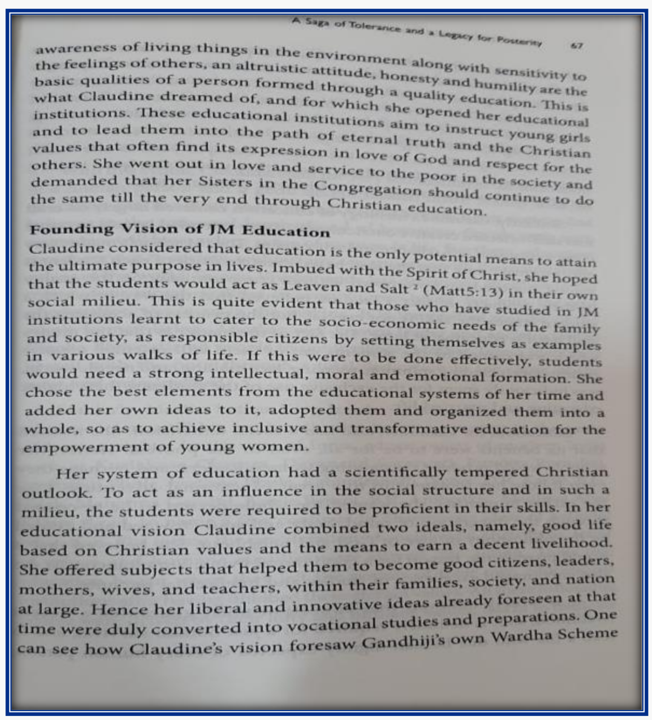

awareness of living things in the environment along with sensitivity to the feelings of others, an altruistic attitude, honesty and humility are the basic qualities of a person formed through a quality education. This is what Claudine dreamed of, and for which she opened her educational institutions. These educational institutions aim to instruct young girls and to lead them into the path of eternal truth and the Christian values that often find its expression in love of God and respect for the others. She went out in love and service to the poor in the society and demanded that her Sisters in the Congregation should continue to do the same till the very end through Christian education.

Founding Vision of JM Education

Claudine considered that education is the only potential means to attain the ultimate purpose in lives. Imbued with the Spirit of Christ, she hoped that the students would act as Leaven and Salt [2] (Matt5:13) in their own social milieu. This is quite evident that those who have studied in JM institutions learnt to cater to the socio-economic needs of the family and society, as responsible citizens by setting themselves as examples in various walks of life. If this were to be done effectively, students would need a strong intellectual, moral and emotional formation. She chose the best elements from the educational systems of her time and added her own ideas to it, adopted them and organized them into a whole, so as to achieve inclusive and transformative education for the empowerment of young women.

Her system of education had a scientifically tempered Christian outlook. To act as an influence in the social structure and in such a milieu, the students were required to be proficient in their skills. In her educational vision Claudine combined two ideals, namely, good life based on Christian values and the means to earn a decent livelihood. She offered subjects that helped them to become good citizens, leaders, mothers, wives, and teachers, within their families, society, and nation at large. Hence her liberal and innovative ideas already foreseen at that time were duly converted into vocational studies and preparations. One can see how Claudine's vision foresaw Gandhiji's own Wardha Scheme

Book Published by Prof. (Sr.) Molly Abraham

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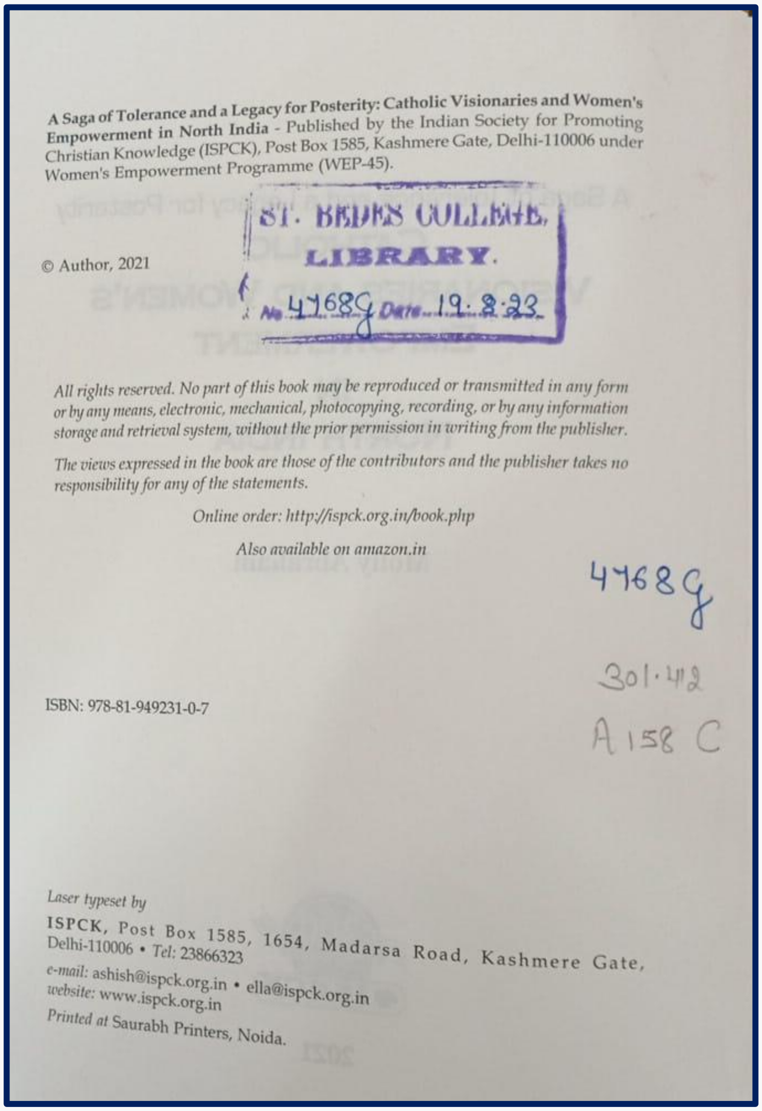

A Saga of Tolerance and a Legacy for Posterity: Catholic Visionaries and Women's Empowerment in North India - Published by the Indian Society for Promoting Christian Knowledge (ISPCK), Post Box 1585, Kashmere Gate, Delhi-110006 under Women's Empowerment Programme (WEP-45).

Online order: http://ispck.org.in/book.php

Also available on amazon.in

ISBN: 978-81-949231-0-7

Laser typeset by
ISPCK, Post Box 1585, 1654, Madarsa Road, Kashmere Gate, Delhi-110006 • *Tel:* 23866323
e-mail: ashish@ispck.org.in • ella@ispck.org.in
website: www.ispck.org.in

Printed at Saurabh Printers, Noida.

Book Published by Prof. (Sr.) Molly Abraham

BACK

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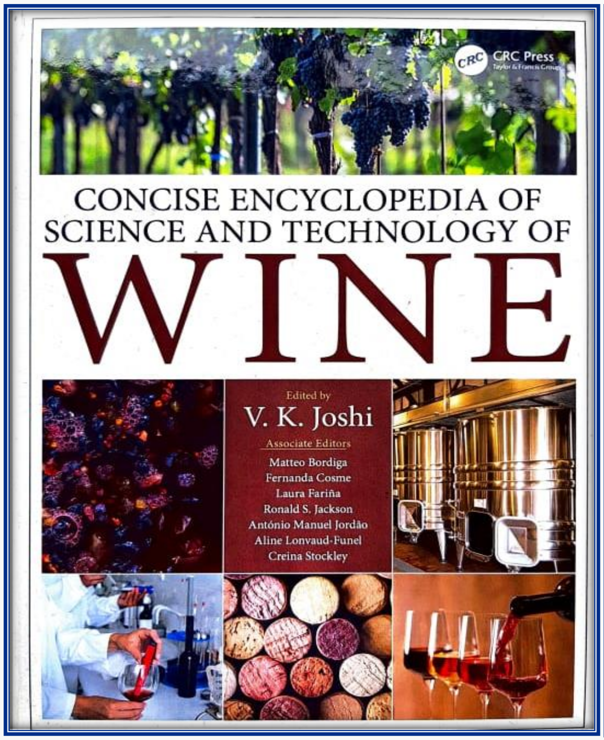
2. Dr. Navdeep Thakur - Department of Biotechnology
   Title of Book: Concise Encyclopedia of Science and Technology of Wine
   Title of Chapter: Culture of Wine Yeast and Bacteria
   Year: 2022
   ISBN: 978-1-315-10729-5



Concise Encyclopedia of Science and Technology of Wine

Edited by
V. K. Joshi

Associate Editors
Matteo Bordiga
Fernanda Cosme
Laura Fariña
Ronald S. Jackson
António Manuel Jordão
Aline Lonvaud-Funel
Creina Stockley

CRC Press
Taylor & Francis Group
Boca Raton London New York
CRC Press is an imprint of the
Taylor & Francis Group, an informa business

26 Culture of Wine Yeast and Bacteria

Tek Chand Bhalla, Navdeep Thakur and Savitri Kapoor

CONTENTS

26.1 INTRODUCTION

The species and strains of *Saccharomyces* specific to wine, apple and pear cider production were first reported by Müller-Thurgauand referred to the addition of yeast cells to beer and bread for enhancing the rate of fermentation. The developments in areas of microbial physiology, biochemistry, genetics, molecular biology, ecology and biochemical engineering have greatly contributed in understanding the extent and behaviour of yeast as a fermentation agent and thus, transforming the art of wine making into a science and technology of wine production. The starter culture or inoculum for conducting wine fermentation may comprise: i) indigenous microfloral yeasts present on the grapes, ii) dry wine yeast, iii) wet yeast (*i.e.* yeast on slants or petri plates), iv) lyophilised yeast, and v) immobilized yeast (entrapped in gels). Besides yeast, lactic acid bacteria, generally *Leuconostoc oenos* is used by wine producers for induction of malolactic fermentation. Here in this chapter, some aspects of the cultivation of wine yeast and lactic acid bacteria have been discussed.

26.2 WINE YEAST: CHARACTERISTICS AND ESTIMATED DEMAND

It often becomes difficult to select a yeast strain from commercial sources for wine fermentation. Wine yeast strains exhibit a lot of variation in their physiology and biochemical characteristics. Some desirable properties of wine yeast important in the selection of a suitable yeast strain for wine production include: (a) fermentation properties: rapid initiation of fermentation; fermentation of variety of carbohydrates; high osmo-tolerance; high ethanol tolerance (up to 15% v/v or more); ability to ferment at low temperature and under pressure; moderate biomass production; (b) flavor characteristics:

Chapter Published by Dr. Navdeep Thakur

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First edition published 2022
by CRC Press
6000 Broken Sound Parkway NW, Suite 300, Boca Raton, FL 33487-2742

and by CRC Press
2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

Library of Congress Cataloging-in-Publication Data

Names: Joshi, V. K., 1955- editor.
Title: Concise encyclopedia of science and technology of wine / edited by V.K. Joshi ; associate editors : Matteo Bordiga, Fernanda Cosme, Laura Fariña, Ronald S. Jackson, António Manuel Jordão, Aline Lonvaud-Funel, Creina Stockley.
Description: First edition. | Boca Raton : CRC Press, 2021. | Includes bibliographical references and index.
Identifiers: LCCN 2020036566 (print) | LCCN 2020036567 (ebook) | ISBN 9781138092754 (hardback) | ISBN 9781315107295 (ebook)
Subjects: LCSH: Wine and wine making--Encyclopedias.
Classification: LCC TP548 .C653 2021 (print) | LCC TP548 (ebook) | DDC 641.2/203--dc23
LC record available at https://lccn.loc.gov/2020036566
LC ebook record available at https://lccn.loc.gov/2020036567

ISBN: 978-1-138-09275-4 (hbk)
ISBN: 978-0-367-56190-1 (pbk)
ISBN: 978-1-315-10729-5 (ebk)

Typeset in Times
by Deanta Global Publishing Services, Chennai, India

Chapter Published by Dr. Navdeep Thakur

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St. Bede's College Shimla

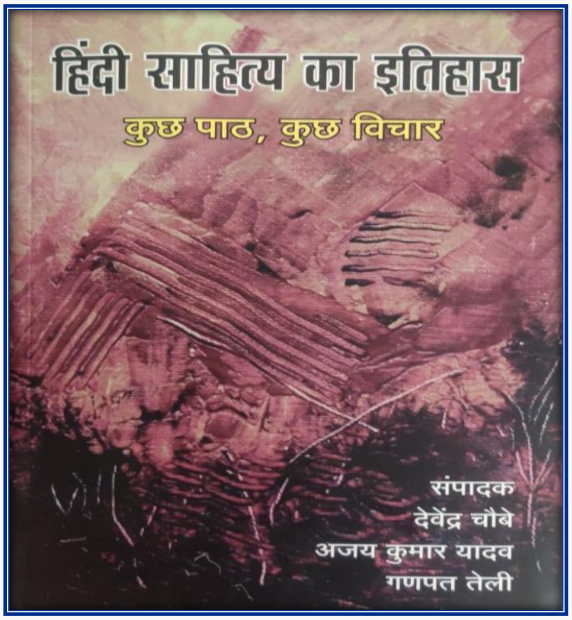
3. Dr. Devina Auchoybur- Department of Hindi

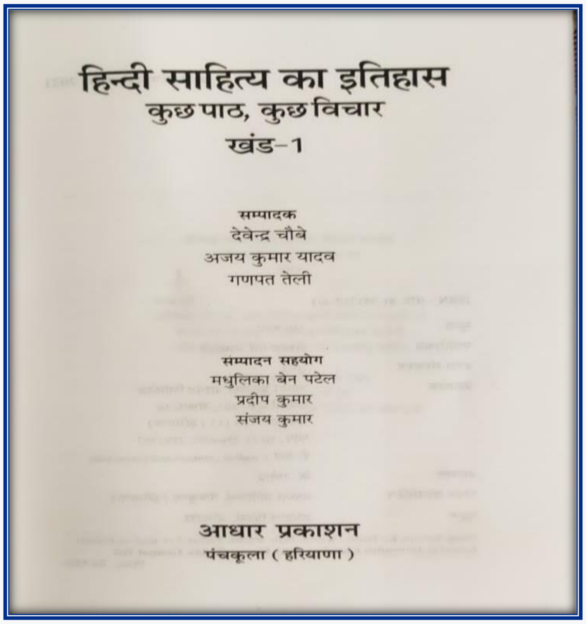
Title of Book: हिंदी साहित्य का इतिहास, कुछ पाठ कुछ विचार, खंड-1V

Title of Chapter: हम प्रवासी' की कथा- कला, भाषा और जिंदगी का यथार्थ’

Year: 2021

ISBN: 978-81-951717-8-1





हिन्दी साहित्य का इतिहास
कुछ पाठ, कुछ विचार
खंड–1

सम्पादक
देवेन्द्र चौबे
अजय कुमार यादव
गणपत तेली

सम्पादन सहयोग
मधुलिका बेन पटेल
प्रदीप कुमार
संजय कुमार

आधार प्रकाशन
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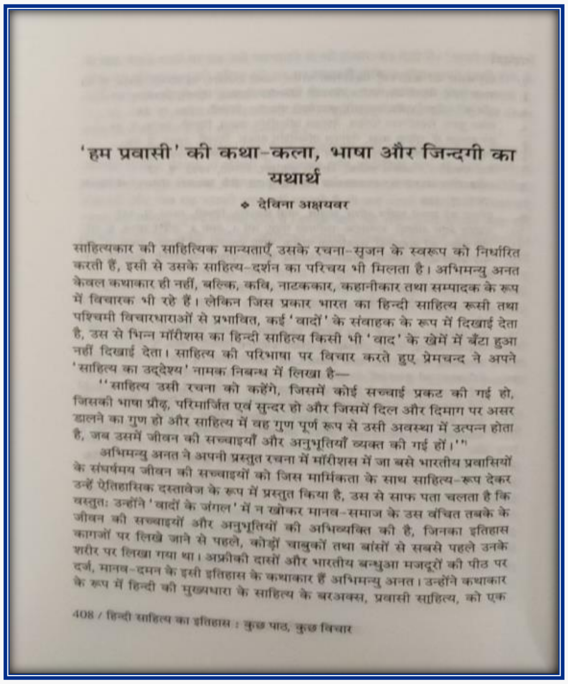


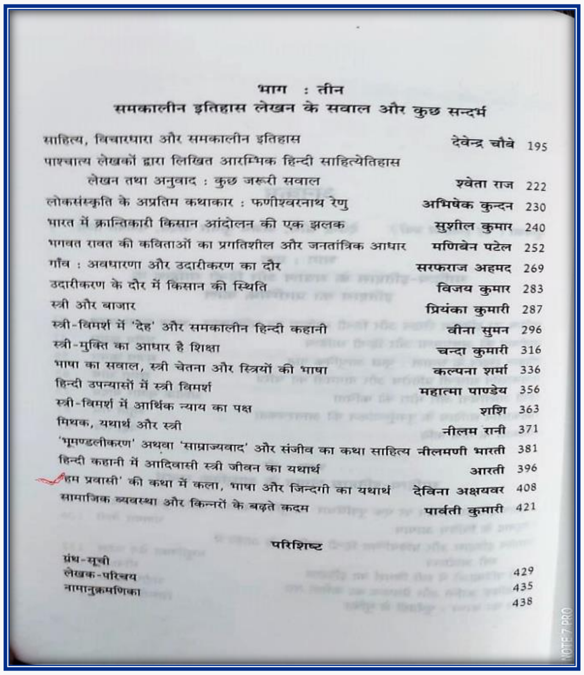
'हम प्रवासी' की कथा-कला, भाषा और जिन्दगी का यथार्थ

❖ देविना अक्षयवर

साहित्यकार की साहित्यिक मान्यताएँ उसके रचना-सृजन के स्वरूप को निर्धारित करती हैं, इसी से उसके साहित्य-दर्शन का परिचय भी मिलता है। अभिमन्यु अनत केवल कथाकार ही नहीं, बल्कि, कवि, नाटककार, कहानीकार तथा सम्पादक के रूप में विचारक भी रहे हैं। लेकिन जिस प्रकार भारत का हिन्दी साहित्य रूसी तथा पश्चिमी विचारधाराओं से प्रभावित, कई 'वादों' के संवाहक के रूप में दिखाई देता है, उस से भिन्न मॉरीशस का हिन्दी साहित्य किसी भी 'वाद' के खेमें में बँटा हुआ नहीं दिखाई देता। साहित्य की परिभाषा पर विचार करते हुए प्रेमचन्द ने अपने 'साहित्य का उद्देश्य' नामक निबन्ध में लिखा है—

''साहित्य उसी रचना को कहेंगे, जिसमें कोई सच्चाई प्रकट की गई हो, जिसकी भाषा प्रौढ़, परिमार्जित एवं सुन्दर हो और जिसमें दिल और दिमाग पर असर डालने का गुण हो और साहित्य में वह गुण पूर्ण रूप से उसी अवस्था में उत्पन्न होता है, जब उसमें जीवन की सच्चाइयाँ और अनुभूतियाँ व्यक्त की गई हों।''[1]

अभिमन्यु अनत ने अपनी प्रस्तुत रचना में मॉरीशस में जा बसे भारतीय प्रवासियों के संघर्षमय जीवन की सच्चाइयों को जिस मार्मिकता के साथ साहित्य-रूप देकर उन्हें ऐतिहासिक दस्तावेज के रूप में प्रस्तुत किया है, उस से साफ पता चलता है कि वस्तुतः उन्होंने 'वादों के जंगल' में न खोकर मानव-समाज के उस वंचित तबके के जीवन की सच्चाइयों और अनुभूतियों की अभिव्यक्ति की है, जिनका इतिहास कागजों पर लिखे जाने से पहले, कोड़ों चाबुकों तथा बांसों से सबसे पहले उनके शरीर पर लिखा गया था। अफ्रीकी दासों और भारतीय बन्धुआ मजदूरों की पीठ पर दर्ज, मानव-दमन के इसी इतिहास के कथाकार हैं अभिमन्यु अनत। उन्होंने कथाकार के रूप में हिन्दी की मुख्यधारा के साहित्य के बरअक्स, प्रवासी साहित्य, को एक



भाग : तीन
समकालीन इतिहास लेखन के सवाल और कुछ सन्दर्भ

परिशिष्ट

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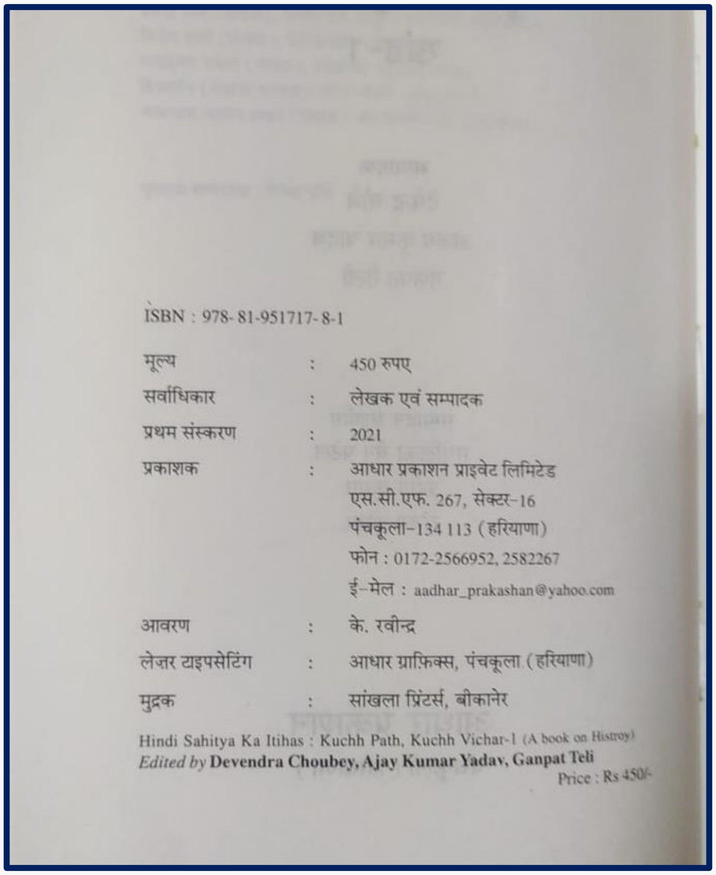

ISBN : 978- 81-951717- 8-1

मूल्य	:	450 रुपए
सर्वाधिकार	:	लेखक एवं सम्पादक
प्रथम संस्करण	:	2021
प्रकाशक	:	आधार प्रकाशन प्राइवेट लिमिटेड एस.सी.एफ. 267, सेक्टर-16 पंचकूला-134 113 (हरियाणा) फोन : 0172-2566952, 2582267 ई-मेल : aadhar_prakashan@yahoo.com
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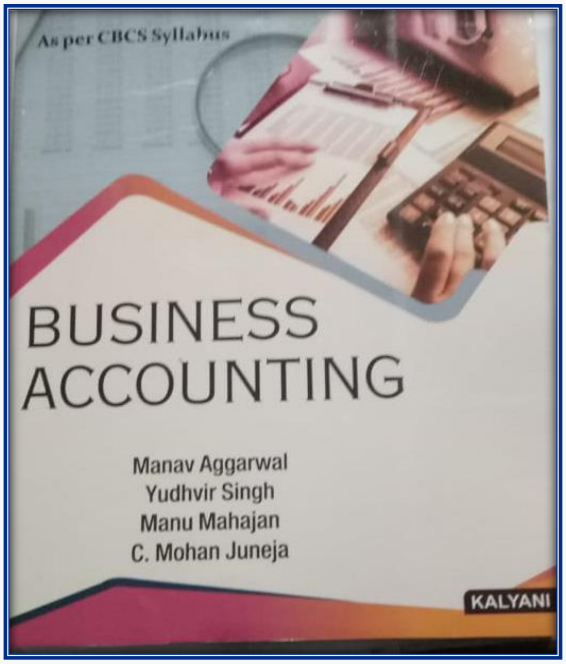
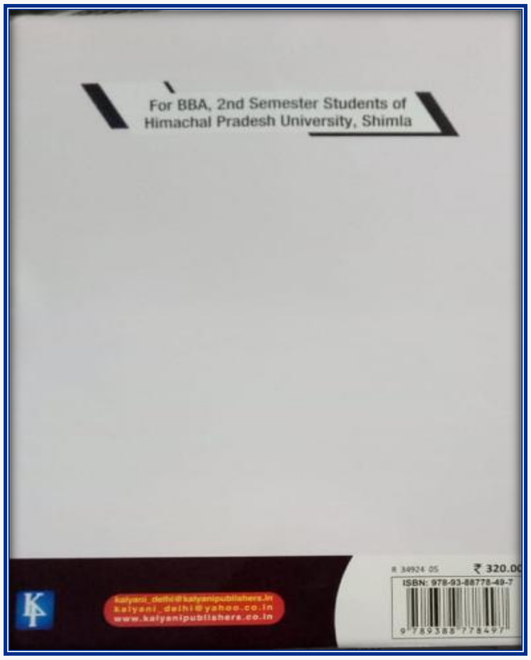
Hindi Sahitya Ka Itihas : Kuchh Path, Kuchh Vichar-1 (A book on Histroy)
Edited by **Devendra Choubey, Ajay Kumar Yadav, Ganpat Teli**
Price : Rs 450/-

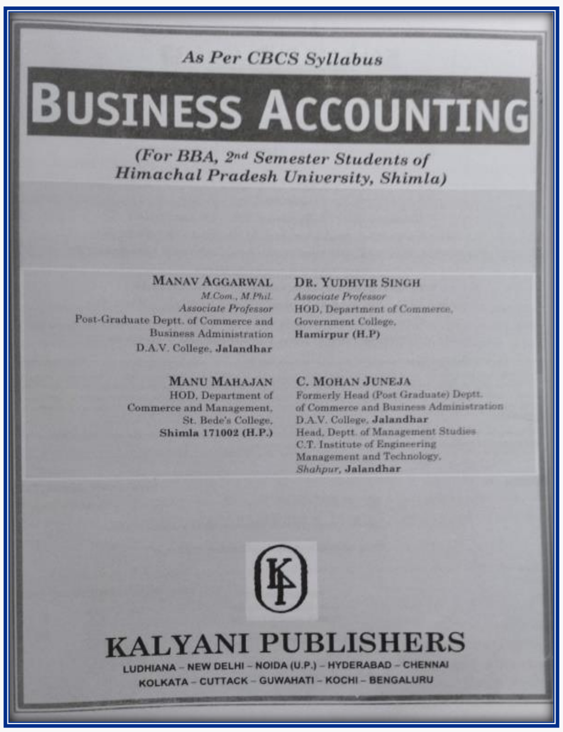
Chapter Published by Dr. Devina Auchoybur

BACK

4. Mr. Manu Mahajan- Department of Commerce
   Title of Book: Business Accounting
   Year: 2022
   ISBN: 978-93-88778-49-7



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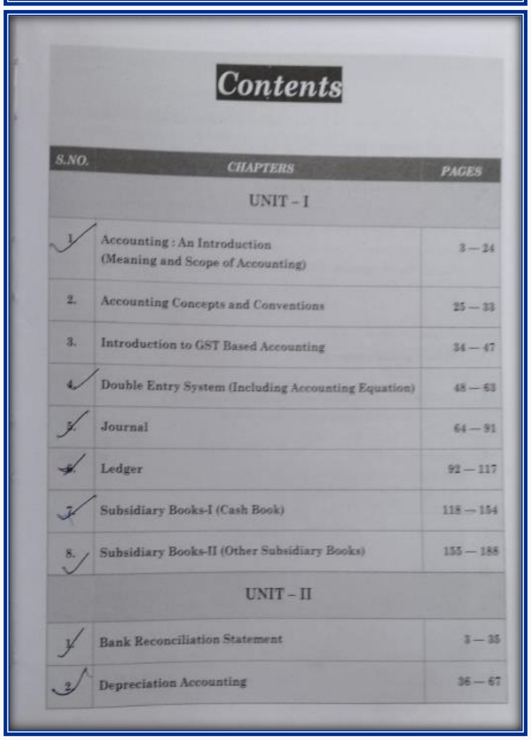
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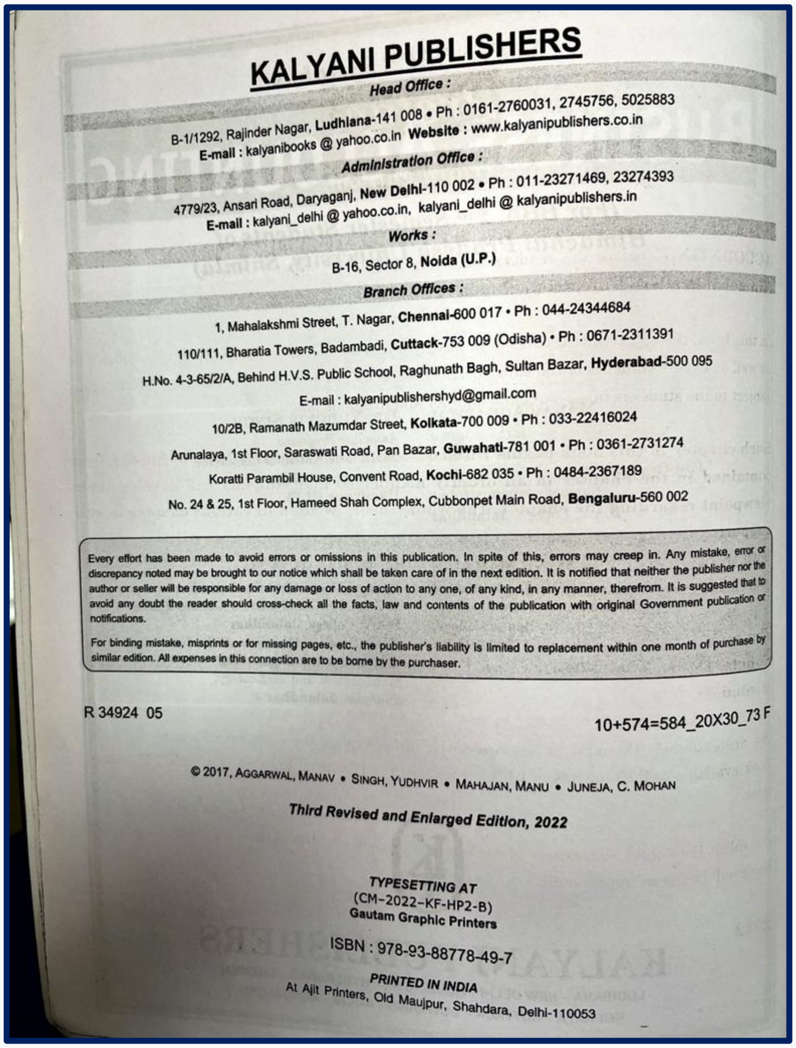

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Head Office :

B-1/1292, Rajinder Nagar, **Ludhiana**-141 008 • Ph : 0161-2760031, 2745756, 5025883

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10+574=584_20X30_73 F

Third Revised and Enlarged Edition, 2022

TYPESETTING AT

(CM-2022-KF-HP2-B)

Gautam Graphic Printers

ISBN : 978-93-88778-49-7

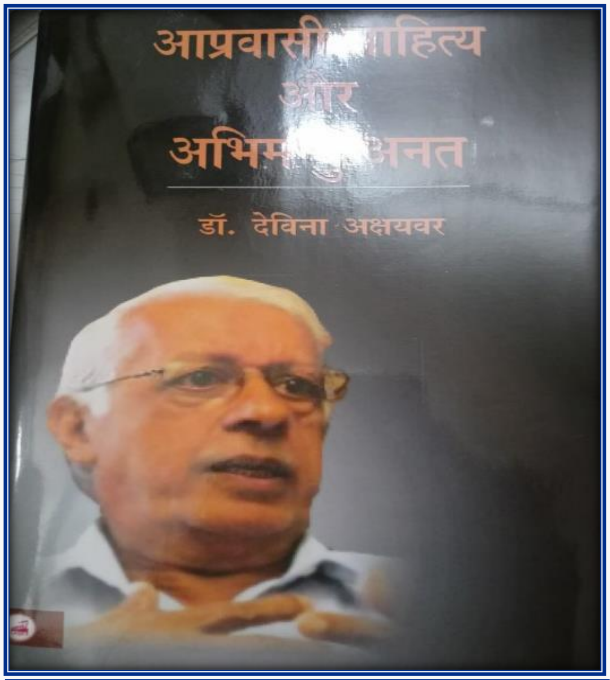
PRINTED IN INDIA

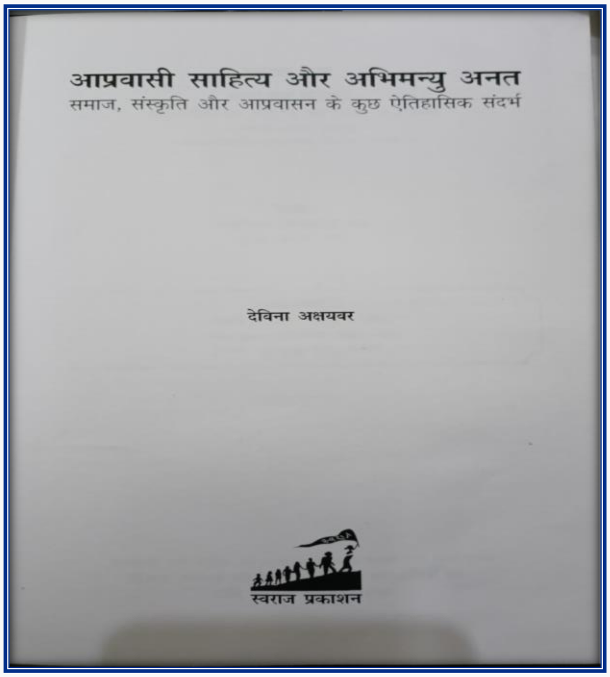
At Ajit Printers, Old Maujpur, Shahdara, Delhi-110053

Book Published by Mr. Manu Mahajan

BACK

5. Dr. Devina Auchoybur- Department of Hindi
   Title of the Book: आप्रवासी साहित्य और अभिमन्यु अनत
   Year: 2021
   ISBN: 978-81-952713-5-1





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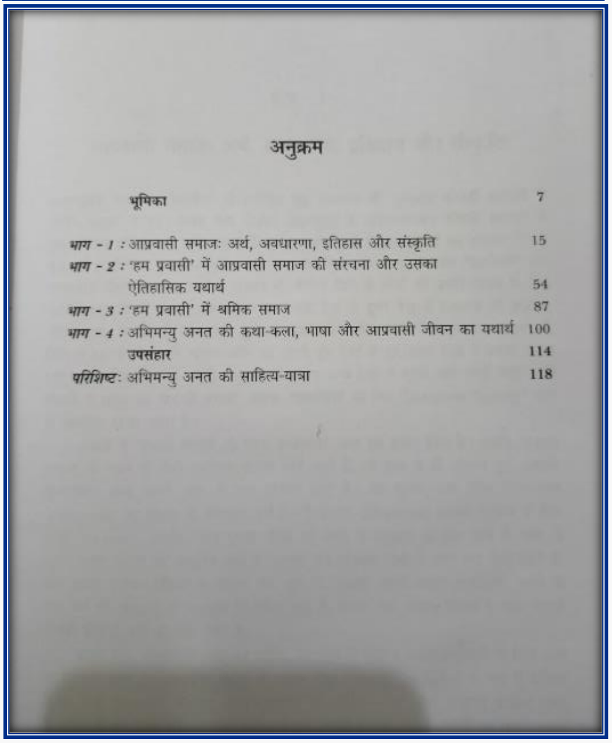
देविना अक्षयवर

स्वराज प्रकाशन



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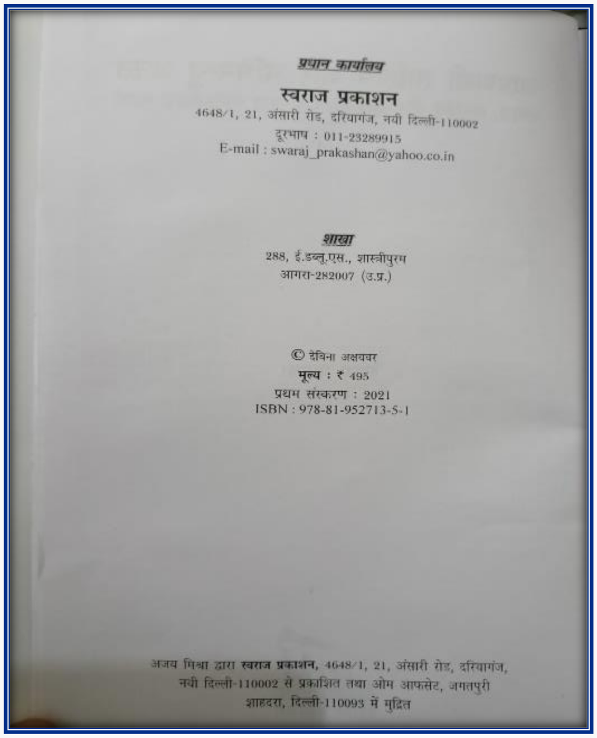

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आगरा-282007 (उ.प्र.)

मूल्य : ₹ 495

प्रथम संस्करण : 2021

ISBN : 978-81-952713-5-1

अजय मिश्रा द्वारा **स्वराज प्रकाशन**, 4648/1, 21, अंसारी रोड, दरियागंज, नयी दिल्ली-110002 से प्रकाशित तथा ओम आफसेट, जगतपुरी शाहदरा, दिल्ली-110093 में मुद्रित

Book Published by Dr. Devina Auchoybur

BACK

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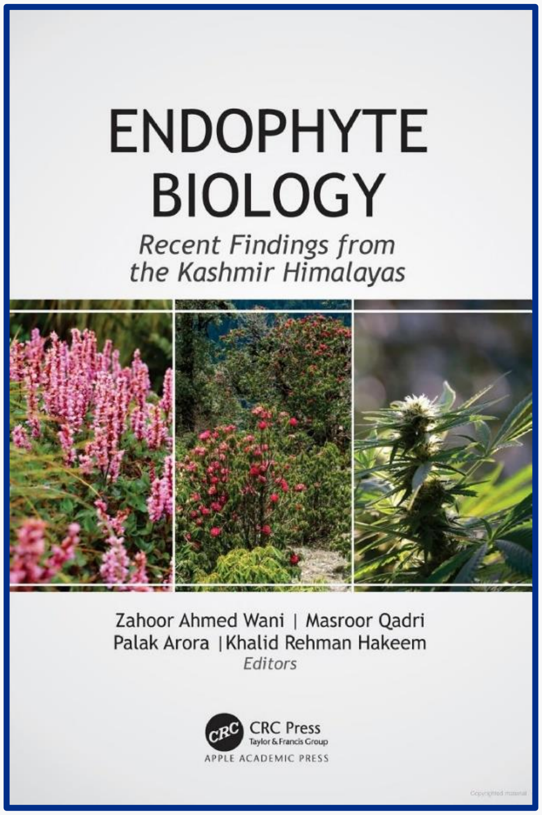
6 Dr. Kusum – Department of Botany

Title of Chapter: Endophyte Biology Orchid and Endophytes: A hand in glove relationship

Year: 2022

Title of Book: Endophyte Biology Recent Findings from the Kashmir Himalayas

ISBN: 9781774638323



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First edition published 2023

Apple Academic Press Inc.
1265 Goldenrod Circle, NE,
Palm Bay, FL 32905 USA

760 Laurentian Drive, Unit 19,
Burlington, ON L7N 0A4, CANADA

CRC Press
6000 Broken Sound Parkway NW,
Suite 300, Boca Raton, FL 33487-2742 USA

4 Park Square, Milton Park,
Abingdon, Oxon, OX14 4RN UK

Apple Academic Press exclusively co-publishes with CRC Press, an imprint of Taylor & Francis Group, LLC

Library and Archives Canada Cataloguing in Publication

Title: Endophyte biology : recent findings from the Kashmir Himalayas / edited by Zahoor Ahmed Wani, PhD, Masroor Qadri, PhD, Palak Arora, PhD, Khalid Rehman Hakeem, PhD.
Names: Wani, Zahoor Ahmed, editor. | Qadri, Masroor, editor. | Arora, Palak, editor. | Hakeem, Khalid Rehman, editor.
Description: First edition. | Includes bibliographical references and index.
Identifiers: Canadiana (print) 20220200343 | Canadiana (ebook) 20220200378 | ISBN 9781774638323 (hardcover) | ISBN 9781774638330 (softcover) | ISBN 9781003277262 (ebook)
Subjects: LCSH: Endophytes—India—Jammu and Kashmir.
Classification: LCC QR351 .E53 2023 | DDC 579/.17095463—dc23

Library of Congress Cataloging-in-Publication Data

CIP data on file with US Library of Congress

ISBN: 978-1-77463-832-3 (hbk)
ISBN: 978-1-77463-833-0 (pbk)
ISBN: 978-1-00327-726-2 (ebk)

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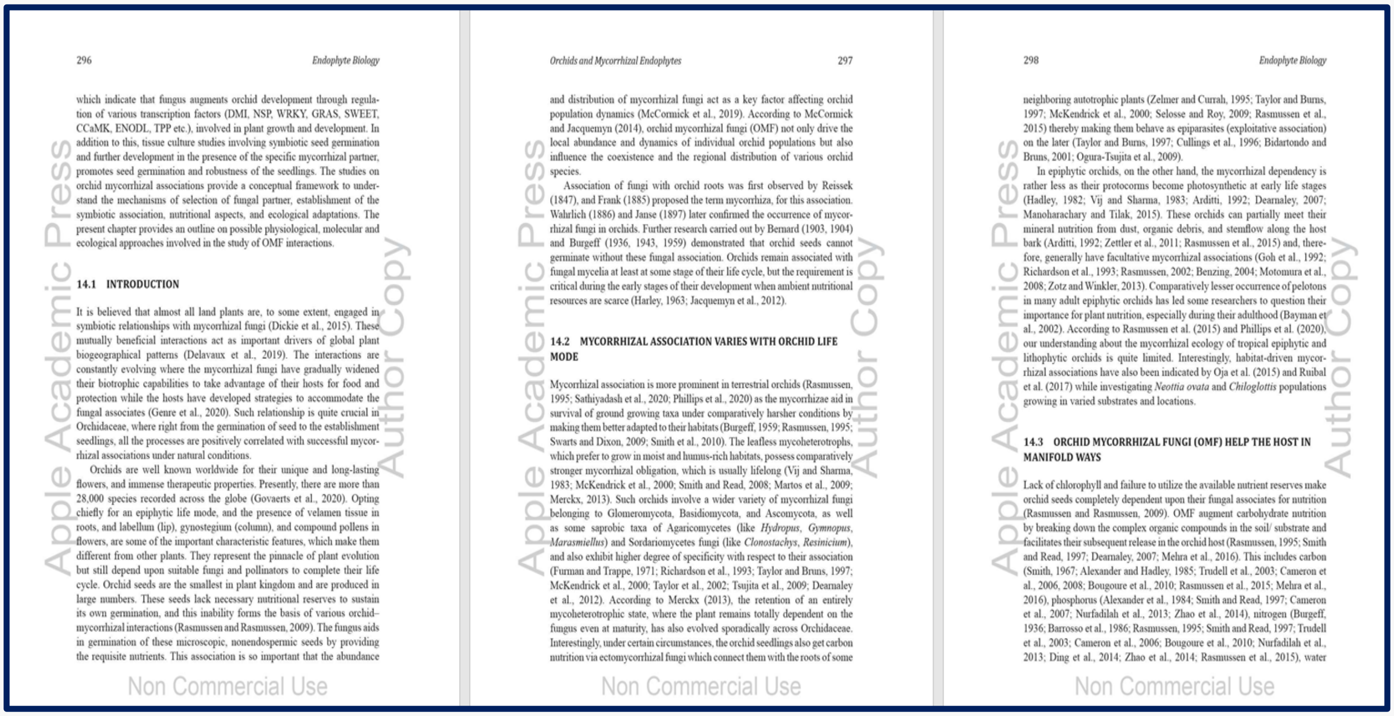

which indicate that fungus augments orchid development through regulation of various transcription factors (DMI, NSP, WRKY, GRAS, SWEET, CCaMK, ENODL, TPP etc.), involved in plant growth and development. In addition to this, tissue culture studies involving symbiotic seed germination and further development in the presence of the specific mycorrhizal partner, promotes seed germination and robustness of the seedlings. The studies on orchid mycorrhizal associations provide a conceptual framework to understand the mechanisms of selection of fungal partner, establishment of the symbiotic association, nutritional aspects, and ecological adaptations. The present chapter provides an outline on possible physiological, molecular and ecological approaches involved in the study of OMF interactions.

14.1 INTRODUCTION

It is believed that almost all land plants are, to some extent, engaged in symbiotic relationships with mycorrhizal fungi (Dickie et al., 2015). These mutually beneficial interactions act as important drivers of global plant biogeographical patterns (Delavaux et al., 2019). The interactions are constantly evolving where the mycorrhizal fungi have gradually widened their biotrophic capabilities to take advantage of their hosts for food and protection while the hosts have developed strategies to accommodate the fungal associates (Genre et al., 2020). Such relationship is quite crucial in Orchidaceae, where right from the germination of seed to the establishment seedlings, all the processes are positively correlated with successful mycorrhizal associations under natural conditions.

Orchids are well known worldwide for their unique and long-lasting flowers, and immense therapeutic properties. Presently, there are more than 28,000 species recorded across the globe (Govaerts et al., 2020). Opting chiefly for an epiphytic life mode, and the presence of velamen tissue in roots, and labellum (lip), gynostegium (column), and compound pollens in flowers, are some of the important characteristic features, which make them different from other plants. They represent the pinnacle of plant evolution but still depend upon suitable fungi and pollinators to complete their life cycle. Orchid seeds are the smallest in plant kingdom and are produced in large numbers. These seeds lack necessary nutritional reserves to sustain its own germination, and this inability forms the basis of various orchid–mycorrhizal interactions (Rasmussen and Rasmussen, 2009). The fungus aids in germination of these microscopic, nonendospermic seeds by providing the requisite nutrients. This association is so important that the abundance

and distribution of mycorrhizal fungi act as a key factor affecting orchid population dynamics (McCormick et al., 2019). According to McCormick and Jacquemyn (2014), orchid mycorrhizal fungi (OMF) not only drive the local abundance and dynamics of individual orchid populations but also influence the coexistence and the regional distribution of various orchid species.

Association of fungi with orchid roots was first observed by Reissek (1847), and Frank (1885) proposed the term mycorrhiza, for this association. Wahrlich (1886) and Janse (1897) later confirmed the occurrence of mycorrhizal fungi in orchids. Further research carried out by Bernard (1903, 1904) and Burgeff (1936, 1943, 1959) demonstrated that orchid seeds cannot germinate without these fungal association. Orchids remain associated with fungal mycelia at least at some stage of their life cycle, but the requirement is critical during the early stages of their development when ambient nutritional resources are scarce (Harley, 1963; Jacquemyn et al., 2012).

14.2 MYCORRHIZAL ASSOCIATION VARIES WITH ORCHID LIFE MODE

Mycorrhizal association is more prominent in terrestrial orchids (Rasmussen, 1995; Sathiyadash et al., 2020; Phillips et al., 2020) as the mycorrhizae aid in survival of ground growing taxa under comparatively harsher conditions by making them better adapted to their habitats (Burgeff, 1959; Rasmussen, 1995; Swarts and Dixon, 2009; Smith et al., 2010). The leafless mycoheterotrophs, which prefer to grow in moist and humus-rich habitats, possess comparatively stronger mycorrhizal obligation, which is usually lifelong (Vij and Sharma, 1983; McKendrick et al., 2000; Smith and Read, 2008; Martos et al., 2009; Merckx, 2013). Such orchids involve a wider variety of mycorrhizal fungi belonging to Glomeromycota, Basidiomycota, and Ascomycota, as well as some saprobic taxa of Agaricomycetes (like *Hydropus*, *Gymnopus*, *Marasmiellus*) and Sordariomycetes fungi (like *Clonostachys*, *Resinicium*), and also exhibit higher degree of specificity with respect to their association (Furman and Trappe, 1971; Richardson et al., 1993; Taylor and Bruns, 1997; McKendrick et al., 2000; Taylor et al., 2002; Tsujita et al., 2009; Dearnaley et al., 2012). According to Merckx (2013), the retention of an entirely mycoheterotrophic state, where the plant remains totally dependent on the fungus even at maturity, has also evolved sporadically across Orchidaceae. Interestingly, under certain circumstances, the orchid seedlings also get carbon nutrition via ectomycorrhizal fungi which connect them with the roots of some

neighboring autotrophic plants (Zelmer and Currah, 1995; Taylor and Burns, 1997; McKendrick et al., 2000; Selosse and Roy, 2009; Rasmussen et al., 2015) thereby making them behave as epiparasites (explotative association) on the later (Taylor and Burns, 1997; Cullings et al., 1996; Bidartondo and Bruns, 2001; Ogura-Tsujita et al., 2009).

In epiphytic orchids, on the other hand, the mycorrhizal dependency is rather less as their protocorms become photosynthetic at early life stages (Hadley, 1982; Vij and Sharma, 1983; Arditti, 1992; Dearnaley, 2007; Manoharachary and Tilak, 2015). These orchids can partially meet their mineral nutrition from dust, organic debris, and stemflow along the host bark (Arditti, 1992; Zettler et al., 2011; Rasmussen et al., 2015) and, therefore, generally have facultative mycorrhizal associations (Goh et al., 1992; Richardson et al., 1993; Rasmussen, 2002; Benzing, 2004; Motomura et al., 2008; Zotz and Winkler, 2013). Comparatively lesser occurence of pelotons in many adult epiphytic orchids has led some researchers to question their importance for plant nutrition, especially during their adulthood (Bayman et al., 2002). According to Rasmussen et al. (2015) and Phillips et al. (2020), our understanding about the mycorrhizal ecology of tropical epiphytic and lithophytic orchids is quite limited. Interestingly, habitat-driven mycorrhizal associations have also been indicated by Oja et al. (2015) and Ruibal et al. (2017) while investigating *Neottia ovata* and *Chiloglottis* populations growing in varied substrates and locations.

14.3 ORCHID MYCORRHIZAL FUNGI (OMF) HELP THE HOST IN MANIFOLD WAYS

Lack of chlorophyll and failure to utilize the available nutrient reserves make orchid seeds completely dependent upon their fungal associates for nutrition (Rasmussen and Rasmussen, 2009). OMF augment carbohydrate nutrition by breaking down the complex organic compounds in the soil/ substrate and facilitates their subsequent release in the orchid host (Rasmussen, 1995; Smith and Read, 1997; Dearnaley, 2007; Mehra et al., 2016). This includes carbon (Smith, 1967; Alexander and Hadley, 1985; Trudell et al., 2003; Cameron et al., 2006, 2008; Bougoure et al., 2010; Rasmussen et al., 2015; Mehra et al., 2016), phosphorus (Alexander et al., 1984; Smith and Read, 1997; Cameron et al., 2007; Nurfadilah et al., 2013; Zhao et al., 2014), nitrogen (Burgeff, 1936; Barrosso et al., 1986; Rasmussen, 1995; Smith and Read, 1997; Trudell et al., 2003; Cameron et al., 2006; Bougoure et al., 2010; Nurfadilah et al., 2013; Ding et al., 2014; Zhao et al., 2014; Rasmussen et al., 2015), water

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Endophyte Biology
Recent Findings from the Kashmir Himalayas

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Ordering Info/Buy Book

In Production
Pub Date: January 2022
Hardback Price: $189.95 USD | £147.00
Hard ISBN: 9781774638323
Pages: Approx. 336p w/index
Binding Type: Hardback
Notes: 18 color and 13 b/w illustrations

This volume, **Endophyte Biology: Recent Findings from the Kashmir Himalayas**, is a unique compilation of the original, latest, and updated information on endophyte biology of the Kashmir Himalayas. The book presents an introduction to and definition of endophytes, the endophytic diversity of some important plants of the Kashmir Himalayas, bioprospection of endophytes for various drug metabolites, sustainable agriculture, and more. This book discusses the applications of endophytes in the agriculture, aroma, and pharmaceutical industries.

Endophyte biology, the study of microorganisms, often fungi and bacteria, which live within living plant tissues, is an emerging discipline of science with a multitude of applications in ecology, agriculture, and industry. Despite having huge diversity of plants, the information about the endophyte biology is still in its infancy in this part of the world, and this book is an attempt to bridge the information gap on endophyte biology pertaining to the Kashmir Himalayas.

This book will serve as a manual for research scholars as it presents the methodologies and techniques involved in endophyte biology research that can be applied in other regions of the world. Supplemented with illustrations, figures, and tables, the volume is a valuable reference for teachers and students at graduate and undergraduate level in colleges and universities as well as for scientists, researchers, and others.

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Comments from Our Editors and Author

"I'm very pleased with the books you have edited. It shows a very good and careful work by everyone involved along the whole production process, and so the final result is a beautiful piece: it has come out as a very nice and appealing book, easy to handle and read, ... and hopefully of interest for people from diverse related fields!" —Enrique Macia-Barber, PhD, Professor of Condensed Matter Physics, Universidad Complutense de Madrid, Spain; Author of **The Chemical Evolution of Phosphorus: An Interdisciplinary Approach to Astrobiology**

"As the Principal Editor for the trending 3-volume set book of Phytochemistry, I wish to express my sincere gratitude to the management of AAP for their excellent publishing services. Our publishing experience is positive, and the outcome of the book is one that is attracting lots of interests and recommendations from eminent scientists and research scholars worldwide. Our students, who are privileged to be the first users of the book, are very happy with the simplicity of the chapters. I also wish to express my happiness about the robust distribution channel of APP and, more especially, the print quality of our book. I look forward to working with AAP again."— Chukwuebuka Egbuna (MNSBMB, MICCON, AMRSC), Department of Biochemistry, Chukwuemeka Odumegwu Ojukwu University, Uli-Campus, Anambra State, Nigeria

"I would like to thank Dr Mahmood Khan and AAP warmly for offering me the opportunity to publish my book Sustainable Viticulture: The Vines and Wines of Burgundy. I found a lot of pleasure in reflecting on my experience and observations as a viticulturist in Burgundy and other regions of the world. I enjoyed putting in writing thoughts, memories, and ideas I've had for years. I also found pleasure in synthesizing discussions I've had with wine professionals and wine buffs as well as reading notes I regularly jotted down. I can also add that I very much appreciated the

Book Chapter by Dr. Kusum published on January 2022

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