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# OILSEED CROPS

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**Edited by**  
**Yogesh Suryawanshi,**  
**Mohd Shahnawaz, Jyoti Parihar,**  
**Refaz Ahmad Dar, Shallu Samyal,**  
**and Avinash B. Ade**

 **Scrivener  
Publishing**

**WILEY**



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**Scrivener Publishing**

100 Cummings Center, Suite 541J  
Beverly, MA 01915-6106

*Publishers at Scrivener*

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This edition first published 2025 by John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, USA and Scrivener Publishing LLC, 100 Cummings Center, Suite 541J, Beverly, MA 01915, USA

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#### ***Library of Congress Cataloging-in-Publication Data***

ISBN 978-1-394-18579-5

Front cover images supplied by Wikimedia Commons

Cover design by Russell Richardson

Set in size of 11pt and Minion Pro by Manila Typesetting Company, Makati, Philippines

Printed in the USA

10 9 8 7 6 5 4 3 2 1

*Each editor wishes to dedicate this book to their respective parents, spouses,  
and kids.*



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## Preface

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The global population is increasing day by day with the demand of food, fodder and fuel also increasing. Plants are the important source to fulfill this demand. Oilseed plants not only provide energy to living things but also to various industrial instruments. Oilseeds, both edible and inedible, are highly useful to mankind. The demand of plant oil has increased in recent decades, and to fulfil this demand various hazardous methods as well as some good biotechnological approaches are used globally to increase their yield. The present volume, *Oilseed Crops*, discusses all these mega biotechnological achievements with a view toward future opportunities for increasing the oil yield of these oilseed crops. It is a comprehensive exploration of the diverse perspectives and cutting-edge research surrounding these critical plants, aiming to provide an in-depth understanding of their significance in sustainable agriculture and global industry.

So, total 19 high-quality chapters were accepted and included in this volume. These chapters are contributed by researchers working in different parts of the globe. Chapter 1 establishes the foundational concepts of oilseed crop cultivation and utilization. Chapters 2 and 3 overview edible and inedible oilseed plants with detailed analysis of their uses across various sectors, including food production, pharmaceuticals, and biofuels. Chapter 4 discusses challenges in collection, storage, extraction, and detection of oil from these crops, as well as the preservation of oil quality throughout the production process. Chapters 5 and 6 highlight the impact of bacterial and fungal pathogens on oilseed crops, which pose persistent threats to crop yield and quality. Chapter 7 highlights the impact of climate change on the yield of the oilseed crops. Chapter 8 enlists methods to detect adulteration in edible oils obtained from the oilseed crops. Chapter 9 elaborates on the impact of adulterants on the quality of edible oils and enlists its side effects in humans. Chapter 10 discusses the impact of secondary metabolite production in oilseed crops on its oil quality and yield. Chapters 11 and 12 document the impact of genetics, plant breeding, and mutation breeding on improving the quality and quantity of crop yield. Chapter 13 provides a

holistic approach using hydroponics farming for crop production. Chapters 14 and 15 employ advanced biotechnological approaches *viz.*, RNA interference and CRISPR-Cas9 technology for enhancing the yield of oilseed crops. Chapter 16 suggested future research opportunities to improve the yield of oilseed crops at Industry level. Chapter 17 discusses the potential of inedible oilseed crops for biofuel production. Chapter 18 highlights the role of machine learning in oilseed crops and industries and the final chapter 19 overviews the role of genetic engineering technology for enhancing the yield of oilseed crops.

## Acknowledgments

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To begin with the name of Almighty God, The Most Gracious and The Most Merciful. We are highly thankful to the anonymous reviewers, who methodically evaluated the chapters, offering constructive feedback that contributed to the overall quality of the book. We would like to acknowledge all the contributing authors for their patience (as this book took more than 2 years from book proposal acceptance to final book publication) and improving their chapters from time to time without any compromise. We are highly indebted to Dr. Martin Scrivener and Dr. Phillip Carmical, Publisher, Scrivener Publishing-Wiley for kind support from beginning to the final publication of the book. We are thankful to Fidel Rivera, Scrivener Publishing-Wiley for his support in handling the author proofs efficiently.

Last, but not the least, all the editors would like to acknowledge the support, time, patience, trust tendered by their respective parents, spouses and kids to make this book project successful.

**Editors**

