

Advances in
SPICES RESEARCH

History and Achievements of Spices Research
in India Since Independence



P. N. Ravindran, K. Nirmal Babu
K. N. Shiva, Johny A. Kallupurackal

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This book,

ADVANCES IN SPICES RESEARCH

Is dedicated to

*The visionary behind the renaissance and
green revolution in Indian Agriculture*

PROF. M.S. SWAMINATHAN, FRS

*(Former Director General, ICAR, India;
Member, Planning Commission, Government of India;
Director General, International Rice Research Institute,
Manila, Philippines and
Founder President, M.S. Swaminathan Research
Foundation, Chennai, India.)*

On his Eightieth Birthday

For the great leadership he has been giving to the Indian
Agriculture;

For his continuing crusade for gender equity, for
sustainable and equitable utilization of natural resources;

For his relentless efforts to protect Mother Earth from the
clutches of over-exploitation and environmental pollution;

*“A living legend.....who will go into the annals of history
as a world scientist of rare distinction”*

*One of the greatest sons of Modern India ranked along
with Mahatma Gandhi and Rabindranath Tagore.*

PREFACE

Spices research in India started in a rudimentary form in the 1950s, though seriously only from the 1960s with the organization of the All India Coordinated Project on Cashew and Spices. Under this project, research programmes were initiated on major spices and subsequently on seed spices. The project got a further boost when the original coordinated project was bifurcated into independent cashew and spices projects. The new All India Coordinated Research Project on Spices (AICRPS) grew further into an all India network, planning and monitoring the research programmes in 12 major spices. Another phase in the development of research on spices was the setting up of the Regional Research Station of CPCRI at Calicut in 1976, which later became the NRC for Spices (1985) and subsequently (1994) the present, Indian Institute of Spices Research (IISR). Later, the NRC on Seed Spices (NRCSS) was also started to give emphasis on research on seed spices.

During the past fifty years, much research work has been carried out in various spices. However no comprehensive exercise has been made to collect and collate the achievements of the past. Documentation is as important as research itself. Without proper documentation there is always the peril of some one trying to “reinvent the wheel”. This has prompted me to plan the present volume while I was the Project Coordinator for Spices under ICAR. When this idea was brought to the notice of Dr. R.S. Paroda, the then DG, he patted my back and said “Excellent idea, go ahead”. Though I started the work in 2000, it took so much of time to collect and collate the matter from diverse sources. I also had to undertake the preparation of the international monographs on Cardamom, Cinnamon & Cassia and Ginger that prevented me from devoting total attention to this volume. Most of the experts whom I approached gladly accepted my request and the contributions from them reached me sooner or later. Only some of my former colleagues at IISR did not cooperate in this effort, in spite of my repeated requests and they kept me waiting so long. Finally I had to make other arrangements to cover those topics, but this long wait also delayed this volume.

I feel privileged to present this volume to the spices workers of India. Everyone who matters in spices research in India has found a place in this volume as an author or co-author. Every major achievement on spices, on which research work is going on in India, has been incorporated in the text, making this into a very valuable database. It is for the first time that such a comprehensive document on spices has been compiled. I take this opportunity to place on record my sincere gratitude to all the experts who contributed to this volume and to all the people who supported me either directly or indirectly.

This volume contains 31 chapters, out of which the first seven are of general nature, covering the general topics pertaining to spices and spices research. The first one is an introductory chapter that gives a detailed treatment on definitions, classification of spices, condiments and herbs and then briefly traces the history of spices in India from ancient to the present. This chapter also gives a general treatment on the use of spices in cooking, medicine, and their use as bioceuticals, and also the role of spices in the socio-cultural history of India. The subsequent chapters deal with production and export, genetic resources, varieties developed, biotechnological approaches and medicinal applications.

Chapter three is a compilation of information available on the genetic resources and their conservation in India. Though this information is provided under individual crops, this chapter is included for giving a holistic idea.

In the chapter on varieties an effort is made to compile and present the information on all the spices varieties developed in India. It is for the first time that such a compilation is made. Unearthing of information on the old varieties released from various agencies was no easy task as no records could be traced on some of the varieties, especially in the case of chilly varieties released prior to independence. Chapter seven deals with the achievements and contributions of the All India Coordinated Research Project on Spices. The remaining chapters are on specific spice crops, starting from black pepper to saffron. There is also a chapter on underexploited spices. The last three chapters are also of a general nature, one dealing with post harvest technology, one on economics and marketing and another on developmental activities.

I have taken all possible measures to make this first publication on the advancements and achievements of last fifty years of spices research in India, as authoritative and comprehensive as possible. But I am not claiming that this volume is all encompassing or free from errors or omissions. With the help of the co-editors, I tried to collect and collate as much information as I could. The senior editor has spent a lot of time and resources on this volume. I feel my mission fulfilled if the students, researchers, teachers and the others who are interested in spices found this volume useful, motivating and worth keeping a personal copy.

It was not my aim to bring in absolute uniformity among the chapters. The style and approach of authors are not the same and I tried to retain the style as far as possible. Wherever found necessary I tried to supplement the information and in a few instances- as in the case of black pepper, cardamom, cinnamon and ginger, citations are given to the comprehensive monographs published on these crops. By and large I did not attempt a rigorous editing to bring all the chapters in conformity to a set pattern. All the references included in the list of references have not been cited in the text, they are included as they may found useful to the student and scientific community.

I hope that this voluminous compilation will be useful to all those who are interested in spices in one-way or other. This will remain as the only single volume database on the first 50 years of spices research in India. I hope that this volume will be read and referred by students and research workers for many decades to come or as long as spices research remains active. **I do hope that the legacy of many spices research workers will remain alive through the pages of this book. I salute all of them, all those who have gone ahead, and all those who walked along. With all humility I place this volume before the spices workers of India and the Nation at large.**

P.N.Ravindran

1 July 2005.

ACKNOWLEDGEMENTS

The Senior Editor (P.N. Ravindran) started work on this volume when he was the Project Coordinator for Spices (ICAR) and attached to the Indian Institute of Spices Research. When I approached the important spices research and development workers in India, who have good standing in the field of spices research and development, all of them readily agreed to associate with me for the production of this important volume. Let me take this opportunity to acknowledge with gratitude the contributors of all the chapters that are included in this volume. Even late Dr. J.S. Pruthi, who was frequently in the hospital undergoing treatment, cooperated and in spite of his failing health, he managed to supply materials for a chapter on processing of spices. Words are not sufficient to express my gratitude to the chapter contributors, only I can give a big THANK YOU to all of them.

I received lot of dedicated help from my co-editors, who helped in collecting and collating the information received from diverse sources. Though for the past two years due to various other commitments I understand, they did not find the time to get involved much in this work, nevertheless the help that they rendered during the initial phase was indeed invaluable. Let me place on record my sincere indebtedness and gratitude to them. However the drawbacks, if any, are entirely due to me, the co-editors are in no way responsible for the errors or omissions or shortcomings that might have crept into this volume.

I am sincerely thankful to Prof. M.S. Swaminathan, F.R.S, President, MSSRF, Chennai, the greatest name in the field of Indian agriculture, for permitting me to dedicate this volume to him. I feel proud and privileged to dedicate this most important volume on spices to Prof. Swaminathan on his eightieth birthday that was celebrated on August 7, 2005.

I place on record my sincere gratitude to Prof. V.L. Chopra, Member Planning Commission and former DG (ICAR) for readily agreeing to write the foreword to this volume. His foreword has indeed enhanced the very status of this book.

Finally I am grateful to my wife Dr. Shylaja and daughters Ms. Neelima and Ms.Namitha for their whole-hearted understanding and cooperation, which gave me the much needed peace of mind and support to get involved in this work fully.

I once again thank each and every one who helped, collaborated and supported during the course of this work. THANK YOU ALL.

P.N. Ravindran

प्रो. वी. एल. चोपड़ा
Prof. V. L. Chopra

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FOREWORD

Spices, including aromatic culinary herbs, have been in use from very ancient times. The ancient Egyptians, during the Pyramid era (ca. 2600 BC), were known to have used spices. Excavations in the Indus Valley have revealed that several herbs and spices had been in use. The ancient Indian maestros, Susruta the Elder (4th century BC), Charaka (first century AD) and Susruta (second century AD), made many references about the use of spices in the treatment of various illnesses. The western coastal region of India (known as the Malabar Coast in Ancient and Medieval times) was the nerve centre of spices trade in the orient, from where the Arab traders took large quantities of spices and ivory in ships made mostly in a hamlet (Beypore) near the port city Kozhikode (Calicut). The spice trade was under the control of the Romans from 40 AD (when the Roman Mariner Hippalus discovered the sea route to the Malabar Coast), till the decline of the Roman Empire in the 5th century AD. The Arab traders took over the spices trade again and continued till the landing of the Europeans in the Malabar Coast. On May 20, 1498, the Portuguese navigator Vasco da Gama landed in India. This was a historical event of much significance and consequence, and heralded the emergence of India into the modern history. The Portuguese, the Dutch, the French, the English, all were in search of the Holy Grail -spices. The centuries that followed witnessed the worst form of intrigue and intimidation by the Europeans as they unleashed atrocities on the hapless people of the region.

Times have changed. Spices are no longer luxuries, and no longer the privilege of the privileged. They are, however, important for the producing countries like India. India is the largest producer, consumer and exporter of spices in the world. The annual production of spices in India is about 3.0 million tons from an area of 2.5 million ha. Out of this production about 90% is consumed internally and the remaining is exported to about 150 countries around the globe. Spices contribute about 8.5 % of India's export earnings from agricultural and allied products, and about 1.25 % of the total export earnings.

Serious research efforts in spices was initiated by ICAR only in the 1960s, though some research programmes existed even before that, but in a disorganized way. The decades that followed saw remarkable progress in the area of spice research, thanks to the All India Coordinated Research Project that was initiated in the 1970s by the ICAR. Subsequently many SAUs came into the spices research arena and rapid strides were made in the decades that followed, and production and productivity of many of the spices have gone up substantially. However there are many problems that still beset this wonderful group of crops, which require the express attention of the scientists.

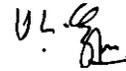
However there is an area that has faced neglect and that is documentation. I need not emphasize the vital importance of documentation in the present, post- WTO world. It is as important as the research

work itself. I am glad that this area has been addressed by one of the most respected spices scientists and the former Project Coordinator for Spices under ICAR, Dr Ravindran. His authentic and comprehensive monographs on black pepper, cardamom, cinnamon & cassia and ginger, published by international publishers of great repute, are very valuable and laudable efforts in this area of scientific documentation. But the present compilation is all the more significant and important as it documents the history and achievements of spices research in the post-independent India. I realize and appreciate the strenuous efforts taken by Dr Ravindran and his co-editors in collecting, collating, editing and presenting the information on spices research in the country for the benefit of students, teachers, researchers and spice lovers of our country.

I congratulate Dr Ravindran in taking up this great effort. I am sure this will remain dear to all spices workers in the country, and being the first such documentation, will remain invaluable for decades to come.

I feel happy to write forward for a book, which in a way is the documentation of the research efforts on spices initiated by ICAR, an organization with which I have long association.

Let me congratulate Dr Ravindran and the co-editors of this volume once more and hope that they will continue to serve the cause of spices and the cause of the country in the years to come.



(Prof. V. L. Chopra)
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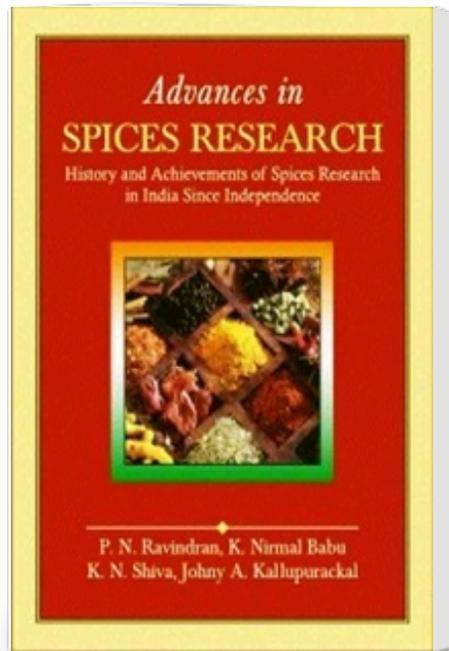
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