

Preface

Kiwifruit is a most successful paradigm of plant domestication in the 20th century, from a wild fruit to current worldwide commercial cultivation in only 110 years. I am proud to say that the kiwifruit (*Actinidia chinensis*) and most species of genus *Actinidia* are endemic plants to my homeland. My research in *Actinidia* as an *Actinidia* germplasm hunter and breeder began in 1979 that took me through 35 years of experience and progress. This includes participating in a national *Actinidia* germplasm survey, collection and inventory, capacity building repositories, germplasm evaluation and breeding and commercialization of kiwifruit industry in China. I am most grateful to the guidance of my senior teachers and the support from many colleagues. My longtime dedicated efforts in many studies from germplasm evaluation & exploration, repository management, population genetics and breeding to fundamental biological questions not only progressively depended my understanding on genus *Actinidia*, but also rendered personal enjoyment and contentment. The history of the kiwifruit domestication dated back to 1904 when *Actinidia chinensis* var. *deliciosa* was introduced into New Zealand from China. Initial domestication was accomplished in New Zealand and worldwide commercial production began in 1970s by a single kiwifruit cultivar 'Hayward'. As for *Actinidia chinensis* var. *chinensis*, tremendous efforts by Chinese kiwifruit researchers on native germplasm exploration and breeding successfully domesticated this variety for commercial production during the past 35 years. The efforts and accomplishments are highly valued worldwide and is a pride of Chinese *Actinidia* researchers.

I had an experience during my Ph.D. training and practice in plant genetics and breeding in the U.S. from

late 1980s to 1990s when I marveled at vast literatures in the university libraries. I became deeply interested in the many classic works of Burbank (1849–1926) and Michurin (1885–1935), two great masters of plant breeding, especially their working notes on exploring plant natural resources and breeding ideas. Those works profoundly impressed me with their ways of thinking and breeding approaches. Thus, the starting point of any plant domestication and breeding for genetic improvement is fundamentally based on in-depth understanding and acquired knowledge of basic biology, variation patterns and processes and interactions between genetics and the environmental. Basic knowledge such as taxonomy, natural distribution, breeding system, inheritance, selection efficiency and hands-on practices are critically important for plant breeders. China is the second richest country for plant diversity including many native crop plants, "Learn from history, Learn by analogy" should help propel us forward.

In the late 1990s, I became a principal investigator and Ph.D. advisor and began my responsibility of strategic planning for the multi directional research of this Chinese endemic genus. Thanks to the previous experience in natural resource surveys guided by my teachers and my footprints on almost all main natural distribution ranges, although still felt "A leaf before the eye shuts the sight of Mount Tai", my expedition and observation notes are quite extensive. Moreover, after many research programs implemented, progresses achieved, and many graduate students trained, the information database on *Actinidia* has enlarged extensively, broadening our understanding and knowledge. Since 2000, I have edited six volumes (*Advances in Actinidia Research* I–VI), and reported a number of research papers and re-

views. In the past 10 years, my colleagues and I have been recognized nationally and internationally in research on *Actinidia* resources and taxonomy, population genetics, breeding and cultivar improvement. Thus, a monograph of the genus *Actinidia* became a priority of my agenda. However, besides my longtime research in *Actinidia*, I have also been a director of botanical gardens for the past 18 years, along with heavy workloads in routine administration. Hence, the writing of this monograph was on and off since 2004 when I drafted the outline. Completion of the monograph took much longer and was more difficult than I had initially expected. As such, it took eight years to completion owing to indomitable and tireless efforts, including those of my students and colleagues. Nonetheless, it was worth "spending eight years grinding this sword".

This book comprises eight chapters directed towards the purpose of being a special genus monograph of its typical characteristics of Chinese endemic genera, i.e. the genus centering in China that is remarkably distributed throughout much of eastern Asia. From just south of the Equator in

the tropics, to cold temperate regions as far north as latitude 50°N, the distribution pattern is relatively common among endemic higher plants in China, representing a constituent of both the Holarctic and Paleotropic floras. The book provides thorough information and detailed data of evolutionary origin, systematics and taxonomy, species description and characteristics, natural distribution and natural reserve, domestication and cultivation history, genetic variation and breeding improvement, cultivars and kiwifruit industry, etc. I have purposely shortened cultivation and industry aspects of common fruit tree books. I had helped and coauthored with the late famous kiwifruit expert Mr Cui Zhixue for his chief edited book "*Actinidia in China*" published in 2002 and it is still largely regarded as the "bible" of genus *Actinidia* by many young researchers. But due to lack of information and data integrity, I felt it has not been regarded as a world class monograph for genus *Actinidia*. Publication of *Genus Actinidia*, a world monograph has fulfilled my long efforts and aspiration in this regards and I hope the monograph will provide overall and comprehensive information and data for kiwifruit researchers and botanists in the world.

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in Guangzhou, China, March 28, 2014