

Preface

Angiosperms are the most diversified plant group in the world, being represented by *ca* 300,000 species in about 400 families. Like all of Life, including ourselves, they have had their own history and gone through many evolutionary stages before they arrived at their current forms. The origin of Angiospermae (flowering plants) has been the subject of much dispute because this is a key event in the history of life, and has a far-reaching influence on our understanding of relationships among seed plants as a whole as well as within the angiosperms. Until recently most of palaeobotanists recognized angiosperms only from the Cretaceous and younger strata. This contradicts the results of molecular analyses.

I have been working on Mesozoic fossil plants for the past two decades, during which time I have studied a number of fossil plants. Some of these fossil plants have been published as Jurassic angiosperms, and, unsurprisingly, many questions and doubts have been raised about them. These questions need to be addressed seriously and journal papers do not provide sufficient space to compare and relate these early angiosperms. In this book these pioneer angiosperms are documented in detail, sometimes with new specimens not studied before. Also, I propose a definition of angiosperms that could be adopted in palaeobotany. My aim is to improve clarity and objectivity of judgment about what constitutes a fossil angiosperm.

In Chap. 1, a brief introductory overview of angiosperms is given. In Chap. 2, some of the already suggested ancestors of angiosperms are noted. Chapter 3 discusses the various features scientists have used to define angiosperms, and an index character for fossil angiosperms is selected. Chapter 4 gives a brief summary of the geological and biological backgrounds of fossil plants to be elaborated upon in later chapters. Chapters 5–7 document in detail several angiosperms or possible angiosperms found in the Early Cretaceous and Jurassic of northeast China and south Germany, and these chapters form the core of the book. Chapter 8, based on current knowledge, raises a new hypothesis on flower formation and discusses possible origin and history of evolutionary development for carpels and flowers. Chapter 9 summarizes the results as a whole and provides suggestions for future study in related fields.

There are 362 pictures and drawings in 101 figures. These pictures represent the fossil plants in a way more direct and objective than words, which more

likely reflects my personal inclination in interpretation as well as wording. Total 530 references are cited. The readers can refer to these references for further information.

It is expected that this book, like many others, will have certain controversial aspects. The publishing of this book can only serve as a starting rather than a concluding point for works on these fossils as well as the origin of angiosperms. Everything in this book, including criteria, definitions, interpretations, and conclusions, is open to discussion. Readers are always welcome to interpret the data in this book from their own perspectives. I hope the readers can feel free to send me their opinions. I believe the future study of early angiosperms will benefit from such feedback and interaction.

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