

Preface

Flowering plants now dominate the terrestrial ecosystems of the planet, and there are good reasons for supposing that the flower itself has been a major contributing factor to the spread of the Angiosperms. Although the Angiosperm flower is based on four whorls of organs – petals, sepal, stamens and carpels – the 300 000 odd species exhibit a huge array of different floral morphologies. Consider, e.g., the humble periwinkle flower and contrast it with the complex passion flower. Since the early 1990s, the powerful tools of the molecular biologist have been applied to the study of the control of Angiosperm flower development. Two plant species, *Antirrhinum majus* (the snapdragon) and *Arabidopsis thaliana* (thale cress) – the former having a remarkable array of floral mutants collected by plant breeders over the years and the latter being easily mutagenised and genetically transformed – were initially studied in respect of the control of floral organ identity. The result was the now-historic ABC model. These two plant species have been responsible for huge advances in our understanding of the control of flower development that go far beyond mere organ identity.

The 11 chapters of this book begin with a chapter describing a model for the evolution of the Angiosperm flower. Chapters 2–5 describe the core development of the flower and include floral induction, floral patterning and organ initiation, floral shape and size, and inflorescence architecture. Chapters 6–8 focus on more specialised aspects of floral development: monoecy, cytoplasmic male sterility and flowering in perennials. Chapters 9 and 10 address more functional aspects: flower colour and scent. The book concludes, appropriately, with flower senescence.

The flowers of higher plants not only contain the organs of plant reproduction but are of fundamental importance in giving rise to fruits and seeds which constitute a major component of the human diet. Thus, wherever possible, this book seeks to explore those aspects of flowers and their development that are important to man.

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