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Cellular Interactions

Edited by

H. F. Linskens and J. Heslop-Harrison



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1 Introduction

H.F. LINSKENS and J. HESLOP-HARRISON

The chapters of this volume deal with intercellular interaction phenomena in plants. Collectively they provide a broad conspectus of a highly active, if greatly fragmented, research field.

Certain limitations have been imposed on the subject matter, the most important being the exclusion of long-range interactions within the plant body. It is true that pervasive hormonal control systems cannot readily be demarcated from controls mediated by pheromones or information-carrying molecules with more limited spheres of action, but consideration is given in this volume to the main classes of plant hormones and their functions only incidentally, since these are treated adequately in other volumes of this Encyclopedia series (Volume 9–11) and in numerous other texts and reviews. Similarly, certain other effects, such as those associated with nutrients and ions, are not considered in any detail. Furthermore, we have excluded intracellular interactions, and also consideration of transport phenomena, which are treated in detail in Volume 3 of this Series. Other aspects of inter-cellular interaction, such as cell surface phenomena and implications of lectin-carbohydrate interactions, and plant-virus inter-relationships, are treated in other sections of this Encyclopedia (Volumes 13B and 14B, respectively). In the volume on physiological plant pathology (Volume 4 of this series) special attention has been given to host-pathogen interaction. These aspects of our subject will therefore be excluded in the present treatise.

On the other hand, the volume includes in its scope various genetic aspects of cellular interaction in plants, and also topics such as algal colony formation and short-range interaction during cell differentiation, which are particularly significant because of the opportunities they so clearly offer for further research.

In the introductory chapter we consider briefly aspects of recent animal cell biological work which have some pertinence for cellular interaction in plants, and offer an outline classification for the various phenomena as a background to the detailed treatments in the main body of the text.

We acknowledge with thanks the help of many people who have advised us – above all, we wish to thank Professor André Pirson, one of the series editors, who initiated the topic and made many valuable suggestions during the preparation of the volume.