# Preface

Plant tissue culture went through a phase when it was regarded as a subject in itself. There was enormous excitement as each new discovery was described to packed audiences in conference halls, then the subject became a technique as science moved on. Plant tissue culture took its place as a key component in plant breeding, plant propagation and biotechnology. Now haploid culture is routine for some crops, helping to shorten the production of new varieties by years. Micropropagation is part of a major commercial enterprise which is producing attractive house plants as well as the multiplication of elite food and timber-producing trees. Genetically engineered crops are in the supermarkets and seem to be here to stay, while the sophisticated secondary metabolism of plant cells is being unravelled and put to use by the industrial chemist to help synthesize pharmaceuticals. In all of these successful applications there is a need to know how to isolate suitable plant tissue as a starting point, to maintain the tissue under *in vitro* conditions in an undifferentiated or partially differentiated form, and finally to redifferentiate the tissue back to the intact plant. These basic steps are described in sufficient detail in this volume to enable anyone new to the technique to start, maintain and redifferentiate a tissue culture. Also described, in a carefully structured format, are details of how the techniques can be applied to haploid and protoplast culture, the production and selection of somaclonal variation, production and pitfalls in micropropagation, and the possibilities of genetic manipulation. The description of the theory and practice should provide the novice with sufficient background for a start to be made on all of these techniques.

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