METHODS IN MOLECULAR BIOLOGY™

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Phytoplasma

Methods and Protocols

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Preface

Phytoplasmas are a group of bacteria that lack a cell wall and can not as yet be grown in axenic culture. They are capable of causing severe diseases in a wide range of plant species, and are vectored between plants by insect vectors (mainly leafhoppers) in which the bacteria can also multiply. The aim of this book is to present a range of important protocols that can form the basis for anyone intending to develop a research programme on phytoplasmas or intending to set up a diagnostics facility for identifying the presence of these pathogens in plants or their insect vectors.

Following an introductory chapter on the importance of phytoplasma diseases, a number of protocols for maintaining collections of plants and insects and for transferring phytoplasmas between plant species by insects, grafting or dodder are presented. This is followed by methods for detection and diagnosis, ranging from microscopy-based methods through PCR and real-time PCR to field-based detection methods. Techniques are also included for separating and classifying the phytoplasmas into their different taxonomic groups and subgroups, as well as methods that have been developed for proteomics analyses. The final chapters cover the methods for separating phytoplasma genomic and plasmid DNA from plant DNA for whole genome sequencing, along with methods for mapping phytoplasma genomes. The target audience is primarily plant pathologists and molecular biologists, including scientists in developing countries where phytoplasmas are often a serious and devastating problem of crop plants.

Nottingham, UK — *Matt Dickinson*
York, UK — *Jennifer Hodgetts*

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