

Book review

R. Hampton, E. Ball & S. de Boer (Eds), 1990. Serological methods for detection and identification of viral and bacterial plant pathogens: a laboratory manual. APS Press, American Phytopathological Society, St. Paul, Minnesota, USA. VII + 389 pages. ISBN 0-89054-115-9. Price 46 USD (USA), elsewhere 57 USD.

The manual describes methods and procedures for preparing and treating polyclonal and monoclonal antibodies, and viral and bacterial antigens. It presents a variety of serological principles and applications to detect and differentiate these antigens. Classical and novel methods of immunochemistry are well documented. Excellent protocols, usually followed by general notes and practical comments, are offered. The layout of the manual could have been better adapted for use as a laboratory guide, since methods and procedures are hard to trace among other sections in each chapter.

The first part of the manual summarizes the principles of the immune response, the nature and structure of antigens and antibodies, and antigen-antibody interactions. Unfortunately, only a limited number of pages is devoted to these subjects and significant features like the genetic basis of heterogeneity in antibody-binding sites are neither covered nor referred to. Immunologists may experience this section as oversimplified, but for the non-immunologist it provides a practical framework for the techniques presented in later sections.

The second part starts with introductory chapters on purifying viral and bacterial antigens. It is followed by several methods for raising and isolating monoclonal and polyclonal antibodies and by a variety of antibody-labelling procedures. The last chapter in this part briefly describes systems which can be applied to amplify weak signals in immunoassays and immunoblotting.

The third part treats immunodiffusion, electrophoresis, precipitation and a number of other techniques applied to detect antigens in a liquid-phase environment. Especially in this part one starts questioning why the editors decided to combine methods used to detect and characterize bacteria and viruses. Virus detection and classification, contrary to that of bacteria, closely involved with the advancements of serological techniques. In reality, techniques considered as novel in bacteriology are 'classical' in virological research. Fortunately, the remaining sections which constitute the bulk of the manual, address more specific procedures currently used to detect and identify either pathogen, and other important applications.

The fourth part deals with the detection of viral and bacterial antigens attached to solid phases like ELISA, blotting techniques, radio-immunoassay, ISEM and the application of colloidal gold in immuno-electron microscopy. The use of some of these methods suited to study serotypic and taxonomic relationships, and epitope and paratope characterization is well described.

The final part of the manual elaborates new applications and special topics like immuno-isolation of bacteria, infectivity neutralization of viruses, and immunological techniques for molecular plant pathology such as translation product immunoprecipitation, screening of DNA libraries and polysome immunopurification. It is followed by a glossary of serological terms, a list of suppliers (oriented mainly to the American market) and indexes on general subjects, bacteria, chemicals and viruses.

The editors have largely met their objectives, i.e. to instruct students, apprise and challenge established researchers, and to provide entry to the literature.

J.F.J.M. van den Heuvel