

hensiveness—very few important papers escape the net of the reviewers. There are also helpful tables and diagrams in many of the contributions. Additionally, small type is used for the less important sections of the review so that it is possible to skim through the chapters and avoid the detail if so desired. All but two of the twenty-three chapters are in the English language. In summary then

this review series continues to provide an excellent service to plant scientists, alerting them to recent developments in many different fields.

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Phytochemicals in Plant Cell Cultures: edited by F. CONSTABEL and I. K. VASIL, Volume 5 in the Cell Culture and Somatic Cell Genetics of Plants Series, Academic Press, San Diego, 1988. 618 pp., \$110.

This is the second of two volumes devoted to the production of secondary metabolites in plant cell cultures. The first volume covering physiological and technical aspects was reviewed earlier in this Journal (Vol. 27, p. 4008). This volume is the straightforward review of the chemical substances that have been characterized in either callus or suspension cultures, class by class. Where information is available, biosynthetic and metabolic aspects are also discussed. The compounds are grouped into five headings: phenolics, alkaloids, terpenoids, miscellaneous substances and biologically active compounds. Almost all chapters are written by acknowledged experts and the information presented is generally accurate and

up-to-date.

It is unfortunate that accumulation in quantity is unusual and the practical application of tissue culture is still limited to a very few substances, such as the naphthoquinone pigment shikonin. Nevertheless, the study of phytochemicals in tissue culture has been extremely worthwhile, since it has permitted the isolation and characterisation of many of the enzymes of biosynthesis. This book is a true reflection of the current state of the art in coaxing plant cells to synthesise in the test tube the secondary substances that they so readily produce in the whole plant. Anyone wishing to find out how far phytochemists have succeeded in producing a particular compound or class of compound in cell culture will find the answer here.

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Handbook of Plants with Pest-Control Properties: by MICHAEL GRAINGE and SALEEM AHMED. John Wiley & Sons, New York, 1988. xvii + 470pp. \$44.95.

Recent years have seen a resurgence of interest in higher plants as a source of 'leads' to the development of new drugs and pesticides. The success for example, of the semi-synthetic pyrethrins has demonstrated the commercial potential in studying nature's chemical arsenal, yet only about 10 000 secondary metabolites have been characterised out of an estimated total of 400 000 or more. Reports of insecticidal and other pesticidal effects have tended to be overshadowed in ethnobotanical literature by studies of pharmacological activity. Those interested in agrochemical possibilities have had difficulty accessing reliable data. This volume, a timely and welcome catalogue of 3400 plants reported to have pest-control properties or to have potential as such, has been compiled over six years from literature searches and the response to surveys from regional, national and international agencies worldwide.

The book is divided into three sections. In section one, plant species are listed in alphabetical order followed by information in a data base format with codes explained in a frontispiece. The data include plant characteristics (life cycle, type, classification, climate and soils), description of

the active material (stability in use and storage, active principles when known), methods of preparation/extraction/application, plant parts used, type of pest-control activity observed, toxicity, organisms controlled, and references. The most widely quoted plant species are also listed as the 'cream of the crop' at the start of the section for quick reference. Section two is an alphabetical list of pests, divided into groups according to type, (bacteria, fungi, insects etc.) followed by the plant species which control them. Section three has a similar format to section one, but is an alphabetical list of poisonous plants which have been used to control non-insect animal parasites and diseases. Both sections one and three are fully referenced, 1398 sources being listed, some dating back more than seventy years.

A possible criticism of this book is that species names are not followed by their botanical authority. Despite the warning in the frontispiece that 'the scientific names of plants and pests may have been changed to conform to the current approved usage' some confusion may still arise. Nevertheless, this volume provides a unique and convenient reference to pesticidal plants and will be a valuable asset to many phytochemists.

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