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BOOK REVIEW

Nuclear Magnetic Resonance: edited by H. F. LINSKENS and J. F. JACKSON, Modern Methods of Plant Analysis, New Series, Volume 2, Springer, Berlin, 1986. 196 pp. DM 139.

Traditionally, plant scientists have applied NMR techniques to the structural elucidation of natural products and there is scarcely any class of natural molecule where proton and ^{13}C NMR methods have not proved invaluable. Recently, NMR methods of structural elucidation have been extended e.g. by the application of two dimensional correlation spectroscopy so that some treatment of this subject might have been expected in this volume. Curiously, nothing is included on these matters and the editors have concentrated instead on new areas of plant science where NMR is just beginning to be used e.g. on whole plant tissues. Thus, C. Kerhoas and C. Dumas describe the uses of a range of NMR techniques for assessing the degree of hydration and the state of the membrane in pollen grains, while D. C. McCain considers the value of proton NMR measurements in determining the orientation of chloroplasts in leaves. There are also chapters by J. K. M. Roberts on NMR methods for measuring intracellular pH, by P. Bendel on determining DNA structure and by J. Visintainer and R. C. Hirst on ^{13}C NMR determination of rubber content in guayule plants. One has the impression from these chapters that while there are considerable possibilities in these new analytical approaches, more developmental work is needed before they become established for routine use.

To phytochemists, the most familiar chapters will be the first three where the use of NMR methods are considered in relationship to the biosynthesis and turnover of secondary metabolites. Here, the use of ^{13}C, ^{31}P and deuterium NMR methods have already proved their worth. These three chapters provide us with many satisfying examples of the power of NMR techniques in uniquely advancing our knowledge of plant metabolism.

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