

cinnamic acids possessing only methoxy substituents, and which, therefore, will not couple with the diazotized reagents mentioned, indicator solutions such as buffered methyl red (0.1% alcoholic methyl red-0.167 M phosphate buffer, 1:2) and 2,6-dichlorophenol-indophenol (0.4% in 95% ethyl alcohol) are useful as spray reagents for locating the acid spots, particularly those with weak fluorescence.

Employing the procedures outlined here, we have successfully degraded 1 mg samples of the flavanone aglycones hesperetin, homoeriodictyol, isosakuranetin, and naringenin, and identified their degradation products by paper chromatography. We have not obtained satisfactory results with eriodictyol, apparently because the caffeic acid which should be produced on degradation of this compound is destroyed by the alkaline degradation conditions. This method has been employed successfully in our laboratory for positive identification of very small quantities of unknown flavanone aglycones obtained by hydrolysis of glycosides from citrus fruits.

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J. Chromatog., 3 (1960) 505-507

BOOK REVIEW

Chromatographie en chimie organique et biologique, Vol. I, edited by E. LEDERER (Collection de monographies de chimie organique, compléments au *Traité de Chimie organique*), Masson et Cie, Paris, 1959, 671 pages.

This is the first book on chromatography to be written in French since 1949. Volume I is divided into two parts: *Généralités* (358 pages) and *Applications de la chromatographie en chimie organique* (276 pages), while Volume II will deal with the applications of chromatography to biochemistry.

Part I consists of an excellent account by CHOVIN of the theory and methods of adsorption chromatography (110 pages), which is well illustrated, and gives an adequate and clear account of the theory. The chapter on ion exchange (by BUC, 34 pages) is rather superficial and in places not quite clear. A table on the properties of resins, for example (page 120), has a column entitled "temperature" without specifying that the maximum operating temperature is meant. It could also be the optimum temperature.

An excellent treatise on partition chromatography was written by BOULANGER AND BISERTE (92 pages), who give a wealth of practical information, for example on

J. Chromatog., 3 (1960) 507-508

desalting, Fig. 23. CHOVIN AND LEBBE deal in the following chapter with the principles of gas chromatography. This seems to be the first account of this method in French. This chapter alone will make the book invaluable for all French-speaking chemists. The last chapter of Part I, by ROCHE, LISSITZKY AND MICHEL, is a thorough account of radioactivity techniques.

Part II starts with a chapter by BESTOUGEFF on hydrocarbons, written rather from the point of view of an analytical chemist and containing only three tables of retention volumes and R_F values.

The chapter on alcohols by DEMOLE gives a detailed account with numerous tables of R_F values. Occasional small paragraphs mention some important electrophoretic methods. Phenols are dealt with by DIETRICH who mentions solvent systems and reagents (in detail) of most of the useful methods. It is a pity that he did not include the work published in the last two years. Aldehydes and ketones are treated in the same manner as alcohols by DEMOLE. A rather long chapter (divided into lower and higher fatty acids and aromatic acids) by ASSELINEAU gives a good account of the separation of acids. It is one of the merits of the book that it deals with all forms of chromatography unlike similar recent treatises on paper chromatography. Thus the reader can decide which method is most suitable for his purposes.

A short chapter on nitro compounds (by DIETRICH) as well as another on halogen compounds (by E. LEDERER) is of necessity incomplete because most of the compounds of these classes were already mentioned in other chapters. Amines are well discussed by DIETRICH and alkaloids by JANOT AND LE HIR. These present of course only a survey of the principles. STAMM AND ZOLLINGER present the separation of dyestuffs, including much of their own work in this field. The final chapter, by JACQUES AND KAGAN deals with stereoisomers.

Both subject and author indexes are well prepared. Unfortunately the volume is not entirely free from printer's errors.

J. Chromatog., 3 (1960) 507-508

NEW BOOKS

Proceedings of the International Symposium on Microchemistry, held at Birmingham University, August 1958. Published by Pergamon Press, London, 1960, xxvi + 583 pages.

The volume contains all papers presented at the symposium.

Protides of the Biological Fluids (Proceedings of the Seventh Colloquium, Bruges, 1959), edited by H. PEETERS, published by Elsevier Publishing Co., Amsterdam, 1960, x + 420 pages, price 76 s.

Chromatographic and Electrophoretic Techniques, edited by I. SMITH, published by Wm. Heinemann Medical Books Ltd., London, 1960. Vol. 1, *Chromatography*, 648 pages, 160 illus., price 65 s; Vol. 2, *Electrophoresis*, 236 pages, 100 illus., price 30 s. Vol. 1 is a revised and enlarged edition of "*Chromatographic Techniques*".

J. Chromatog., 3 (1960) 508