

Complete deprotection of the pentapeptide XII was achieved by saponification, hydrogenation and treatment with trifluoroacetic acid affording L-histidyl-glycyl-L-aspartyl-L-seryl-L-phenylalanine (XIII), m.p. 215–218° dec.

*Anal.*—Calcd. for  $C_{24}H_{31}N_7O_9$ : C, 51.34; H, 5.53; N, 17.47. Found: C, 51.12; H, 5.68; N, 17.19.

The free pentapeptide XIII was homogeneous to paper chromatography and paper electrophoresis under a variety of conditions.

Further studies on the catalytic activity and the chemistry of the pentapeptide XIII and other peptides incorporating histidine and serine separated by different distances of amino acids are under investigation.

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## Interference of Polycarboxylic Acids in the Determination of Ester Degradation by the Hydroxamic Acid Procedure

**Keyphases**  Ester degradation determination—polycarboxylic acid interference  Hydroxamate assay procedure—polycarboxylic buffer interference  Colorimetric analysis—spectrophotometer

Sir:

In recent studies dealing with the kinetics of degradation of polyethylene glycol-600-mono-oleate in hydro-

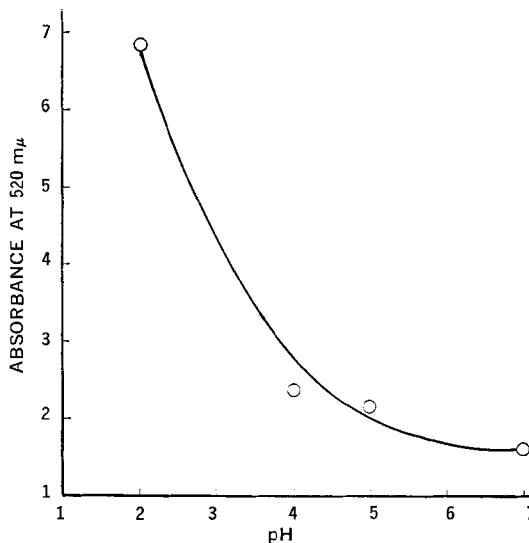


Figure 1—Absorbance of ferric hydroxamate after heating hydroalcoholic solution buffered to various pH values with succinic acid for 24 hr.

alcoholic solution at 80°, inconsistent results were observed. The degradation of the ester was determined by the ferric hydroxamate procedure (1), which indicated an apparent increase in ester concentration as a function of time. Investigation of the system leads us to believe that the succinate buffer system employed appears to react with the ethanol present in the system to form esters.

Blank solutions were prepared containing 0.1 M succinic acid in 50% ethanol and adjusted to pH 2, 4, 5, and 7 with 0.1 N sodium hydroxide and then subjected to refluxing at 80° for 24 hr. Samples were then taken and assayed by the hydroxamate procedure (1) with the results shown in Fig. 1. It is readily apparent that even in the absence of the test compound there is an increase in absorbance at 520 mμ which indicates the formation of an ester species. The reaction probably proceeds *via* an intermediate anhydride formation as reported earlier (2, 3), which would show an identical pH dependency. As expected, similar results were noted in our experiments using other polycarboxylic buffer systems such as citrate and tartrate. The interference was essentially eliminated by the use of phosphate systems.

These findings clearly indicate again the potential side reactions induced by buffers which may give rise to significant interference with analytical procedures. To test the validity of the assumption that the reaction involved esterification of the ethanol, identical solutions were prepared but substituting acetone for ethanol. Acetone was chosen since, if the proposed mechanism were correct, it would not react with the proposed anhydride intermediates. Solutions, after heating under the identical conditions as cited previously, showed no change in absorbance at 520 mμ. These findings would further support the hypothesis that esterification was taking place during the heating process.

The above-cited interference could cause significant errors in the interpretation of high-temperature kinetic

data involving hydroalcoholic solutions such as elixirs which have been buffered with polyfunctional acids.

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## Books

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### REVIEWS

**Amphetamine Abuse.** Edited by J. ROBERT RUSSO. Charles C Thomas, Springfield, IL 62703, 1968. xii + 159 pp. 16 × 23.5 cm. Price 7.50.

This 159-page book is made up of the edited papers of the first National Institute on Amphetamine Abuse which resulted from a Delinquency Study and Youth Development Project of Southern Illinois University. It was funded from a grant awarded by the Office of Juvenile Delinquency and Youth Development, United States Department of Health, Education, and Welfare and held during February, 1966. One finds contained within this volume the various viewpoints of law enforcement, the drug industry, the sociologist, the psychiatrist, and medical researcher, and finally the interesting experience of a young amphetamine abuser himself.

Although no attempt was made to correlate the contradictions of opinions expressed, the book stands as a good example of the complex spectrum of this social problem. It covers the topics of use, misuse and abuse; psychiatric implications; violations; law enforcement problems; and the important role of education.

The reviewer can only reiterate the cover leaf description of the book which states that an educator predictively recommends education as a preventative, a member of the Narcotics Bureau pleads for stronger laws and greater police freedom in enforcement and so on. Hence, this book represents a forum for viewpoints from the various establishments affected by the amphetamine abuse problem, but does not cogently and coherently express ways to solve the problem. However, the book does clarify much confusion in this area, it provides some lines of communication and it will help provide some basis for future legal, medical, and moral decisions about amphetamine abuse.

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**Non-Specific Factors in Drug Therapy.** Edited by KARL RICKELS. Charles C. Thomas, 301-327 East Lawrence Ave., Springfield, IL 62703, 1968, xii + 149 pp. 16 × 23.5 cm. Price \$7.75.

This symposium volume is derived from a session of the 4th World Congress of Psychiatry held in 1966. Nonspecific (*i.e.*, nondrug) factors are considered particularly as they relate both to pharmacologic treatment of depressions, neuroses, and schizophrenia, and to the psychopharmacologic effects of various drugs in normal subjects. Major nonspecific variables affecting drug therapy are grouped

as characteristics of patient, physician, treatment milieu, and non-treatment milieu. Examples of many nonspecific factors considered are attitudes of patient and physician (optimistic or pessimistic) toward drug treatment, personality characteristics of patients (or normals), duration as well as intensity of emotional disturbance being treated, and prior drug experiences. The relationship of such factors to side effects and paradoxical responses as well as to therapeutic success of drug treatment is examined.

Various nonspecific influences of psychological and sociocultural characteristics are discussed at length by several contributors in relation to the phenomena associated with placebo treatment including the controversial concept of "placebo reactors." While one chapter emphasizes the significance or "power" of the placebo and our knowledge of its relative effectiveness according to the varied circumstances, another chapter emphasizes the lack of knowledge on the true incidence of the placebo reactions and on the longitudinal consistency of the supposed "placebo reactor" characteristic. Certainly all agree to the need for further clarification of placebo phenomena and for enlarged and enlightened use of placebos in clinical drug studies.

Designed "to provide the reader with some of the latest findings and thoughts" in an interesting and significant area of psychopharmacology, the volume accomplishes this objective reasonably well. It will be most useful to those with some previous awareness of the subject and to those who will make use of the good selection of bibliographic citations included to pursue their interest among important earlier works.

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**Autoxidation of Hydrocarbons and Polyolefins: Kinetics and Mechanisms.** By LEO REICH and SALVATORE S. STIVALA, Marcel Dekker, Inc., 95 Madison Ave., New York, NY 10016, 1969. xi + 527 pp. 15.5 cm. × 23.5 cm. Price \$29.75.

This book deals primarily with the kinetics and mechanisms of hydrocarbon and polyolefin autoxidation. Following a brief account of some early historical developments, Chapter 1 gives a clear, concise treatment of the general kinetics of free radical reactions. Chapter 2 covers the autoxidation of hydrocarbons in the absence of inhibitors and accelerators while Chapters 3 and 4 deal with simple hydrocarbon autoxidation in the presence of antioxidants and metal catalysts, respectively. The topic of weak chemiluminescence during hydrocarbon autoxidation is presented in Chapter 5,