

SEPARATION OF AMINO ACIDS BY PAPER CHROMATOGRAPHY

AIM- The aim of the experiment is to perform Ascending paper chromatography for the separation of amino acids present in the given sample.

BACKGROUND-

Chromatography is used to separate mixtures of substances into their individual components. All forms of chromatography work on the same principle. They all have basic requirements of stationary phase (a solid or a liquid supported on a solid) and a mobile phase (a liquid or a gas). The mobile phase flows through the stationary phase and carries the components of the mixture with it. Different components travel at different rates based on their affinities toward stationary phase and mobile phase.

In paper chromatography, the stationary phase is a very uniform adsorbent paper. The mobile phase is a suitable liquid solvent or mixture of solvents.

Retention (or) retardation factor (R_f)-

Retention factor is defined the ratio of the distance travelled by the solute to the distance travelled by solvent. The distance travelled relative to the solvent is called the R_f value.

$$R_f = \frac{\text{distance moved by the substance from origin}}{\text{distance moved by solvent from origin}}$$

The value of retardation factor should be between 0-1, it has no units.

The sequence of steps involved during the reaction between ninhydrin and amino acids to produce purple (or) yellow-orange colour.

REQUIREMENTS-

Apparatus: Glass beakers

Whatmann filter paper

Petridishes

Measuring cylinder

Developing chamber and capillary tubes etc.

Chemicals: n-butanol

Glacial acetic acid

Distilled water (4:1:5)

Amino acids (Tryptophan and threonine)

Ninhydrin reagents.

Solvents system and its preparation methods

1. n-butanol and water are taken in 4:5 ratios in a conical flask and allow

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Conclusion

A. Braithwaite, J.F. Smith



Paper Chromatography Amino Acids Separation Conclusion:

Laboratory Protocols in Applied Life Sciences Prakash Singh Bisen, 2014-02-26 As applied life science progresses becoming fully integrated into the biological chemical and engineering sciences there is a growing need for expanding life sciences research techniques Anticipating the demands of various life science disciplines Laboratory Protocols in Applied Life Sciences explores this development This book covers a wide spectrum of areas in the interdisciplinary fields of life sciences pharmacy medical and paramedical sciences and biotechnology It examines the principles concepts and every aspect of applicable techniques in these areas Covering elementary concepts to advanced research techniques the text analyzes data through experimentation and explains the theory behind each exercise It presents each experiment with an introduction to the topic concise objectives and a list of necessary materials and reagents and introduces step by step readily feasible laboratory protocols Focusing on the chemical characteristics of enzymes metabolic processes product and raw materials and on the basic mechanisms and analytical techniques involved in life science technological transformations this text provides information on the biological characteristics of living cells of different origin and the development of new life forms by genetic engineering techniques It also examines product development using biological systems including pharmaceutical food and beverage industries Laboratory Protocols in Applied Life Sciences presents a nonmathematical account of the underlying principles of a variety of experimental techniques in disciplines including Biotechnology Analytical biochemistry Clinical biochemistry Biophysics Molecular biology Genetic engineering Bioprocess technology Industrial processes Animal Plant Microbial biology Computational biology Biosensors Each chapter is self contained and written in a style that helps students progress from basic to advanced techniques and eventually design and execute their own experiments in a given field of biology

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Laboratory Manual for Biotechnology Verma, Ashish S./ Das Surajit & Singh Anchal, Laboratory Manual in Biotechnology Students

Isotopes, a Five Year Summary of U.S. Distribution U.S. Atomic Energy

Commission,1952 *A Century of Separation Science* Haleem J. Issaq,2001-12-19 A Century of Separation Science presents an extensive overview of the critical developments in separation science since 1900 covering recent advances in chromatography electrophoresis field flow fractionation countercurrent chromatography and supercritical fluid chromatography for high speed and high throughput analysis *History of Soy Nutritional Research (1946-1989)* William Shurtleff; Akiko Aoyagi,2021-02-07 The world s most comprehensive well documented and well illustrated book on this subject With extensive subject and geographic index 20 photographs and illustrations many color Free of charge in digital PDF format *Bibliography of Agriculture* ,1969-04 **Advances in Protein Chemistry** ,1952-01-01 Advances in Protein Chemistry **Selected Reference Material, United States Atomic Energy Program: Eight-year isotope summary** U.S. Atomic Energy Commission,1955 *Chromatographic Methods* A. Braithwaite,J.F. Smith,2012-12-06 This book provides a unified and balanced introduction to the general theory of chromatography followed by a detailed treatment of the principles and practice of all the major techniques currently employed in the industrial and academic sectors It is written as a broad introduction to the subject for mid to advanced undergraduates in chemistry pharmacy biochemistry and is suitable for students following the now quite numerous Masters degrees in instrumental analysis The book has been updated to incorporate advances of the last ten years and it contains around 50% new or revised material **History of Soybeans and Soyfoods in Eastern Europe (Including All of Russia) (1783-2020)** William Shurtleff; Akiko Aoyagi,2020-05-31 The world s most comprehensive well documented and will illustrated book on this subject Extensive subject and geographical index 146 photographs maps and illustrations mostly color Free of charge in digital PDF format on Google Books

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