Chromatography and Partition of Cells and Cell Fragments

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The adsorption behavior of cells and cell fragments has been studied in order to apply the chromatographic method for their separation. Cells of *Chlorella pyrenoidosa* have been adsorbed on calcium phosphate columns and eluted with phosphate buffers, thus giving fractions with different cell sizes. From disintegrated *Chlorella* cell walls and starch grains have been separated into almost pure fractions by the same procedure. The partition of particles between two liquid phases has also been studied.

The work is in progress and will be published later.

Protein Chromatography on an Anion Exchange Resin

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Serum albumin and different enzymes have been used in order to study the behavior of proteins on columns of Dowex 2. Separations have been carried out both with stepwise elution and displacement technique. A detailed paper is under preparation.

Crystalline Beef Cytochrome c

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Crystalline precipitates of beef heart cytochrome c have been obtained from slightly ammoniacal ethanol solutions at —20° C. Iron analysis and enzymatic activity agreed favourably with the best preparations obtained by Paléus and Neilands [1].

1. Paléus, S. and Neilands, J. B. *Acta Chem. Scand.* **4** (1950) 1024.

Phenyl *iso*Thiocyanate as a Reagent in Protein Chemistry

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Reversible Loss of Enzymatic Activity due to N→O Acyl Migration

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It has been found that an N-peptidyl → O-peptidyl rearrangement can be brought about in lysozyme by keeping the enzyme for a few hours in formic acid solution at room temperature. During this treatment the enzyme is gradually inactivated. However, the activity can be completely restored by keeping the inactivated enzyme in aqueous solution at a neutral reaction. Using a pH-stat, it was found that at pH 7.5 the reactivation is accompanied by a consumption of alkali. Both the reactivation and the alkali consumption follows a first order reaction with a specific rate constant at 20° C of 1.15×10^{-2}.

A Comparative Study of Some Methods Used for the Quantitative Determination of Proteins

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Work on fractionation and metabolism of proteins at this Institute requires methods for protein determination. In many cases it is sufficient with rather approximate values on a large number of samples, whereas more precise methods are required when chromatographic recoveries and protein synthesis are studied.

The following methods have been compared as to relative simplicity, speed, sensitivity and specificity:

Direct turbidimetric method with trichloroacetic acid,