



Ptyalin action on insoluble acid-treated cellulose residues
by Eldon N Sanborn

A THESIS Submitted to the Graduate Committee in partial fulfillment of the requirements for the degree of Master of Science in Chemistry
Montana State University
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Abstract:

Hydrochloric acid hydrolysed cellulose residues were treated with saliva amylase and the extent of this ptyelin action upon the insoluble cellulose residue was determined by quantitatively measuring the amount of reducing sugars produced.

A study was made of the effects of acid concentration, duration of acid hydrolysis, and the temperature used during acid hydrolysis on the amount of cellulose residue which would be hydrolyzed by ptyalin.

Since normal cellulose is not susceptible to ptyalin hydrolysis, a theory has been proposed to explain the action of saliva amylase on the insoluble cellulose residues.

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CELLULOSE RESIDUES

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Approved:



Head of Major Department



Chairman, Examining Committee



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I. ABSTRACT

Hydrochloric acid hydrolyzed cellulose residues were treated with saliva amylase and the extent of this ptyalin action upon the insoluble cellulose residue was determined by quantitatively measuring the amount of reducing sugars produced.

A study was made of the effects of acid concentration, duration of acid hydrolysis, and the temperature used during acid hydrolysis on the amount of cellulose residue which would be hydrolyzed by ptyalin.

Since normal cellulose is not susceptible to ptyalin hydrolysis, a theory has been proposed to explain the action of saliva amylase on the insoluble cellulose residues.

II. INTRODUCTION

It is well known that the potentially rich carbohydrate source of cellulose as an energy food is denied most of the animal world. A few of the lower animals can utilize cellulose directly as a source of energy but the higher animals are compelled to utilize it, at least in the major part, in a roundabout way.

With this in mind, this problem was conceived in the hope that some simple procedure could be found whereby cellulose could, to some extent, be made more directly available to animal life. If a practical solution is not forthcoming in this work, it is hoped that it will arouse interest in and further work to solve the many problems visualized in the course of this study.

