

CHAPTER I

INTRODUCTION

1.1 Introduction

Most tapioca consumed in the world today comes from Thailand, the largest supplier of tapioca on the world market. The Thai tapioca trade is not quite as successful as it should be. The main reasons are a lack of technological improvement of production capacity, a lack of government support and a lack of experience in international trade. The price of tapioca depends mainly on the export market price. However the quota for the world market to export tapioca is still limited. Consequently, the best resolution to increase the value of tapioca starch is to conduct tapioca starch through the chemical modification to develop its qualifications suited for each type of work.

Unmodified tapioca starch is the devaluation of product due to its qualifications; viscosity, disclarity, dissolution and high inclination of becoming gel. Also, tapioca starch is an endurable to heat and shear substance, not being served in any field of industries.

An interesting quality improvement of tapioca starch in food industry area is to carry on an experiment with the hydroxypropylation process; hydroxypropylated starch given in the final process is used as one of ingredients in highly thicken level in various kinds of food products: sauce, soup and pie. Besides, hydroxypropylated starch is served in some ceramics and textile industries as well. However, hydroxypropylated starch manufacture in Thailand does not flourish since degree of

substitution of hydroxypropylated groups is still in the primary stage, apparently not deserved for using in any industries.

1.2 Objective

This study is on the development of higher degree of substitution of hydroxypropyl groups in tapioca starch.

1.3 Scope of the Research

In order to develop higher degree of substitution, this work involves the synthesis of hydroxypropylated starch with hydroxypropyl groups getting from propylene oxide. This study focuses on optimizing parameters affected the higher degree of substitution, i.e., the quantity of sodium sulfate, the quantity of sodium hydroxide, propylene oxide concentration, reaction time, temperature and reaction medium. The physical properties of hydroxypropylated starch were determined to compare with the native tapioca starch.

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย