CHAPTER I

INTRODUCTION

1.1 General

Gelatin is obtained by selective hydrolysis of collagen, the major intercellular protein constituent of the white connective tissues of the animal body, particularly in the skin, bones, and tendons.

The industry recognizes four different kinds of gelatin, as edible, technical, pharmaceutical and photographic gelatin. Gelatin is a widely consumed food, and it is a popular dessert, which easily assimilated and even helps in the digestion of other foods by forming and emulsion with fat and proteins. Gelatin has played an important part in the rapid development of the motion-picture and photographic industries. It is coated on the film base, constituting the sensitized emulsion of the light-sensitive silver salts. Technical gelatin is quite an arbitary name applied to small amounts used for miscellaneous purposes, such as for sizing paper, textiles and straw hats. Gelatin is used by pharmaceutical houses for making capsules and as an emulsifier.

Thailand imports lot of gelatin from abroad each year though raw materials to produce gelatin are available and sufficient. The figure of importation of gelatin from various source are shown in Appendix A. One of the reasons may be that research in this field is not extensive and popular and the technology is not so advanced to produce

gelatin with required properties. Encouragement in this field should be made to provide technology to the existing manufacturing plant in Thailand.

1.2 Statement of Problems

Collagen from difference sources has partically the same x-ray pattern, which suggests that the character of gelatin is determined by the degree and type of processing rather than the raw material. Change of any processing conditions in the following stages of the process may have an influence on the ultimate suitability of the gelatin for a particular end use:

(a) prior raw material treatment (acid or alkali)

(b) washing

(c) type of acid and pH

(d) cooking - number of extraction coupled with time and temperature

(e) filtration and evaporation

(f) drying

(g) final form

When gelatin is used, it must be re-wetted and then dried. For most practice, gelatin is dried at low temperature to prevent thermal degradation. But in our country, the normal air is approximately at 30 degree centigrade. If drying is done at low temperature, the cost of drying process will be high. So the knowledge of drying process in quantitive is very important. However, most of detail of drying process has been presented qualitatively.

1.3 Purpose of Research

The objective of the experiments was to investigate the drying rate of the gelatin at various drying conditions and to study the thermal degration.

1.4 Scope of Research

The scope of this work was as follows:

(a) to evaluate the influence of air flow rate, hot air temperature, humidity of air and thickness of gelatin on the drying rate of gelatin.

(b) to study thermal degradation of dried gelatin

(c) to seek limiting drying condition for a specified gelatin product.