CHAPTER I

INTRODUCTION

Seaweeds have been used as a staple item of diet in Japan, China and other parts of the world for a very long time. Seaweed became popular in areas close to production as food, medicine, fertilizer and chemicals. The commercial application was in the production of agar and carrageenan from red seaweed (Rhodophyceae), sodium alginate from brown seaweed (Phaeo-phyceae) and other chemicals.

In Thailand, there are many kinds of seaweeds growing in different parts along the southern coast, especially red and brown seaweeds. Attention is therefore directed towards the red seaweeds (Rhodophyceae), genus Gracilaria which are suitable for use as raw material in the production of agar. The main sources of Gracilaria are Songkla, Suratthanee, Ranong and other provinces as shown in Table 1 (1). In Lake Songkla, Gracilaria confervoides (2,3) is usually found all the year round and easy to harvest.

A constant demand in consumption of agar in Thailand is quite interesting as shown in Table 2-4. The cost of imported agar from overseas is rather high since 1970 (4). It is therefore the intention of this research project to study the methods of producing agar from these red seaweeds

in southern Thailand. The agar yield in red seaweeds from each source was determined to find out whether these red seaweeds can be used as raw material in the production of agar. If these seaweeds contain sufficiently high agar content, they may be used for producing agar to supply our demand in Thailand.

The sequence of investigation steps to study the extraction of agar from red seaweeds in southern Thailand are as follows:

1. Collection of the data concerning the location, amount and growing season of the red seaweed in southern Thailand.

2. Collection of the red seaweed, Gracilaria from Ranong, Songkla and Suratthanee.

3. Determine the various factors affecting the extraction of agar to obtain the optimum conditions.

4. Determine the agar content of each source of red seaweeds.

5. Testing of some properties of extracted agar obtained from the experiment.

6. Determine the method of improving the quality of extracted agar such as alkali pretreatment of seaweed before extraction.

The advantages that may be derived from this experimental study are as follows:

1. To promote the use of natural resources from southern Thailand to produce valuable and useful products

2. The results from this experimental study may be used to evaluate whether these red seaweeds from southern Thailand are a potential source of raw material in the production of agar.

3. A positive in (2) may lead to establishment of home scale or industrial scale of agar industry in Thailand.

4. As a result of (3), there may be sufficient supply of agar to meet the local demand and consequently saving a substantial amount of oversea fund used to import agar from abroad.

Table 1 Occurrence of the Red Seaweeds in Thailand

Division : Rhodophyta

Class : Rhodophyceae

Subclass : Florideae

Order : Gigartinales

Family : Gracilariaceae

Genus : Gracilaria

Species	Local name	Season	Place	Amount of harvest
-	Sa-rai voun (สาหร่ายวุ้น) Sa-rai khow (สาหร่ายเขา)	October	Koh sa-moui, Suratthanee	50-80kg/day (wet basis) (1)
Confervoides (3)	Sai phom nang (สายผมนาง)	March-November	Lake Songkla, Songkla	-
Confervoides	ka-rai (กะหร่าย)		Pak nam and Auo ka-pur, Ranong	-
-	-	-	Trad, Chuntaburi	-