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Author(s)	Khanjanapaj Lewmanomont
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# UTILIZATION OF SEAWEEDS IN THAILAND

**Khanjanapaj Lewmanomont**

Faculty of Fisheries  
Kasetsart University  
Bangkok 9, Thailand

## ABSTRACT

Different seaweeds harvested from natural stocks are utilized in Thailand as human food and animal feed and for medicinal purpose and extraction of crude agar. *Gracilaria* and *Porphyra* are the most exploited commercially. Commercial cultivation through seaweed farming is recommended.

## INTRODUCTION

Thailand, which lies between Latitudes 5° to 21°N and Longitudes 97° to 160°E is one of the countries in Asia favorable for the growth of seaweeds. Being an entirely tropical monsoon country, pronounced wet and dry seasons characterize the climate of the land. The rainy season at the upper part of the country is from May to October, while in the south the rainy period is from October to February. The dry season begins in November and lasts until April. Thailand has 2 527 kilometers of coastline which abounds with seaweeds. The southern coastlines border the Gulf of Thailand on the east and Andaman Sea on the west and consist of sandy-rocky shores, coves, and mangroves areas. However, not much Phycological work has been done along the sea coast.

## SEAWEED UTILIZATION

The Thai people use seaweeds as food, as animal feed, for medicinal purposes, and for extracting agar. Seaweeds are eaten only in particular areas, especially along the coast of the Gulf of Thailand and Andaman Sea. The majority of edible seaweeds belong to the genera *Gracilaria*, *Porphyra*, *Caulerpa*, *Sargassum*, *Hypnea*, *Laurencia*, *Acanthophora*, *Padina*, *Dictyota*, *Hydroclathrus*, and *Chaetomorpha*. These seaweeds are consumed fresh or blanched as salad vegetables, mixed with some ingredients, or used in soup preparations (Lewmanomont 1978).

*Gracilaria* is the only genus used for agar extraction. To extract agar, local people boil in water the bleached, dried *Gracilaria*, filter the mixture through muslin, and let the filtrate set into a gel. Agar can be made into different desserts (Boon-nag 1935).

Seaweeds used for medicinal purpose are *Sargassum* and *Laurencia*. Both are used in the treatment of goiter. Dried *Sargassum* is also boiled and taken as tea to lower body temperature when one has fever.

For animal feed, only the green seaweed *Ulva reticulata* is used in the diet of pigs.

Among the useful seaweeds, *Gracilaria* and *Porphyra* are more popular than the other genera. Both are exploited commercially, but are harvested only from natural stocks.

## **Gracilaria**

This genus occurs in many areas in Thailand. More than ten species had been reported (Lewmanomont 1978). The most common species, *G. verrucosa*, is widely distributed in the Gulf of Thailand and Andaman Sea. The other common species are *G. blodgettii* and *G. crassa*.

Based on the report of the Department of Customs (1956-1980), Thailand exported *Gracilaria* to many countries for agar extraction in 1956 to 1961 and again from 1975 to 1980. In 1980, Thailand exported more than 200 tons of dried *Gracilaria* to Japan, Federal Republic of Germany, Italy, and Hong Kong. Only a small volume was utilized locally as food and for extracting agar. During the same period, Thailand imported agar from Japan, Hong Kong, Korea, Argentina, United States, United Kingdom, and Federal Republic of Germany. It seems ridiculous to export seaweed raw material abroad and then import the final product, agar. In 1966, Thailand imported only 66 tons of agar. Since then, imports have increased dramatically every year. In 1979, 225 tons of agar worth 67 million baht was imported. Therefore, if the cultivation of *Gracilaria* in Thailand becomes successful, it will increase the income of the Thai people living along coastlines and also minimize agar imports once an agar-extracting factory in Thailand is established.

## **Porphyra**

This genus is an expensive red seaweed used as food in Thailand. The common species is *P. vietnamensis*. This species occurs only in the south at

Songkhla, Pattani, and Narathiwat during November to February when the salinity and temperature of seawater are low. It grows on exposed rocks constantly splashed by waves. The local people collect *Porphyra* by hand and sell it fresh in the market or dry it into sheets. The annual production is variable and depends on environmental conditions. It is only at Songkhla where the alga is commercially exploited. The annual yield is about 500 kg fresh weight (Lewmanomont and Ogawa 1979; Prommanond and Sahawatcharin 1968; Thiemmedh 1960). Since *P. vietnamensis* is a tropical species that can tolerate high temperatures, its commercial cultivation in Thailand is possible.

### PROSPECTS OF SEAWEED FARMING

Seaweed farming can provide a steady supply of raw material to a seaweed industry. The potential of seaweed farming in Thailand is rather high since favorable environmental conditions therein such as high light intensity and temperature throughout the year support good seaweed growth. The productivity of seaweed farming is higher in warmer areas than in cold regions. This may be due to faster seaweed growth rates and longer growing seasons in warm areas. Moreover, seaweeds of commercial importance occur in Thailand which are easier to culture than introduced species.

*Gracilaria* and *Porphyra* offer the best prospect for seaweed farming in Thailand. A well-planned project is seriously needed. Cooperation with other countries and aid from foreign specialists are also required.

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