

## Analysis of Quality Sheet Carrageenan of *Eucheuma Cottonii*

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**Abstract:** One of the producers of carrageenan seaweed species are widely cultivated in the territorial waters of the Gulf Kotania, District of West Seram island that is in the hamlet of Osi, is *Eucheuma cottonii*. Group E. *cottonii* seaweed farmers in the village of the island actually already have plans Osi wants to expand its business to cultivate seaweed into products 'semi refined carrageenan like 'carrageenan' that has a higher sale value of dried seaweed. Their reasons for products SRC has a higher value than the sale of dried seaweed, so as to increase their income. Because of the limitations of their knowledge, then they do not know what products are suitable SRC developed in them, how technology handling and processing of raw materials and where the product will be marketed. The solutions offered to business groups seaweed E. *cottonii* in orchard island Osi through IbM this is the formation of carrageenan products processing business press method.

**Keywords:** E.Cottonii, Sheet Carrageenan, Pres Methods.

### Introduction

Seaweed is one of the potential export commodities to be developed. Among the types of seaweed are important economic value is *Rhodophyceae* (red algae) as a producer of agar and carrageenan, while *Phaeophyceae* (brown algae) as a producer of alginates. In Indonesia, most of seaweed are traded in the form of dried and processed for only a small portion of domestic needs. Besides the high market demand, Indonesia has a fairly extensive resources both natural and cultivated. Today, Indonesia is the largest exporters of dried seaweed second after Philipina. One type of seaweed producer of carrageenan are widely cultivated in the territorial waters of the Gulf Kotania, District of West Seram Island Osi namely in the hamlet, village and hamlet Kotania Wael is *E.cottonii*. Businesses they pursue long enough (since 1997) and so far they've pretty much got the help and guidance of the Department of Fisheries and Marine District of West Seram, especially regarding cultivation techniques.

According Suryaningrum (2008), demand dried seaweed *E. cottonii* abroad as much as 559 888 tonnes, while in Indonesia ranges 18000-20000 tons with a total production capability of 56 852 tonnes. Thus, dried seaweed *E. cottonii* has a high market opportunities both within and outside the country. The high level of demand for seaweed is because the benefit is quite extensive, both in the field of food industry, pharmaceuticals, cosmetics, textiles, paper, lubricants and fuels (biofuel).

Group *E. cottonii* seaweed farmers in the village of the island actually already have plans Osi wants to expand its business to cultivate seaweed into products 'semi refined carrageenan' like 'sheet carrageenan' that has a higher sale value of dried seaweed.

According Suryaningrum (2008), the product 'semi refined carrageenan' such as ATC and sheet carrageenan is more suitable to be developed in rural areas, because of the availability of raw materials close to the location of cultivation, simple and relatively inexpensive technology, supporting materials used in the

production process easy obtained local market and selling price of sheet carrageenan higher than the price of dried seaweed. In the domestic market, the price of sheet carrageenan Rp. 40000 to 50000 / kg. The aim of the activities of science and technology to society is the formation of carrageenan home paper products industry in the district of West Seram. Further analysis is required carrageenan product quality paper produced.

## 2. Methodology

### Tools and Materials

#### Material

The materials used for the processing of sheet carrageenan are: dried seaweed, KOH, KCl and Litmus Paper.

#### Tool

The equipment used for the processing of sheet carrageenan is: Pots are, Mixer wood, knife cutters, bucket, basin, Basket plastic, large measuring cup, Fabric Filter, Cutlery Gel, Press Tool, Pan.

#### Carrageenan Processing Procedures Paper With Methods Press

- a. Dried seaweed washed with fresh water until clean, then filtered to separate the water
- b. Seaweed is boiled in 3-8% KOH solution at a temperature of 60-70 °C for 2 h.
- c. Further washing with fresh water until the pH of the water to neutral (pH 7)
- d. Seaweed is extracted by boiling in water (water volume 20 times the weight of seaweed) and KCl 2% of the weight of the seaweed, the boiling temperature is 90-95 ° C for 2 h.
- e. Carrageenan extract solution was filtered with a cloth, the filtrate in capacity in a plastic container.
- f. Put the filtrate into a mold rectangular shape, then cooled overnight until the solution turned into a clot / order.
- g. Remove that carrageenan from the mold, then cut into thin (8 mm) by using a rope strings. The slab wrapped in calico cloth and arranged in stages in the press tool, then pressed overnight, where the top of the press method given weight by 60 kg.
- h. Once pressed, carrageenan slab dried in the sun for 3 days (approximately 20% moisture content).
- i. Grey cloth is removed from the plates carrageenan, then packed in plastic bags. Part mouth plastic bag sealer (glued) in order carrageenan paper does not absorb water from the air (rehydration).

## 3. Results and Discussion

### Carragenan Product Quality Analysis Paper

Some types of products resulting from the handling and processing of seaweed *E. cottonii* is done in this activity are: dried seaweed commonly performed by Osi island communities, dried seaweed mixed with fresh water, seaweed is processed with Alkali cold and grass carrageenan sea processed into paper (semi refined carrageenan product). Analysis of the quality of products made in these activities include water content and ash content. The purpose of the product quality analysis to determine the quality of all products produced by the business group. Results of analysis of the quality of processed seaweed products shown in Table 1.

**Table 1. Analysis Quality of Product Processed Seaweed *E. cottoni***

No	Product Type	Replay	Water Content (%)	Ash content (%)
1	Dried Seaweed	1	24.94	18.34
		2	24.42	19.46
2	Fresh Dried Seaweed	1	22.14	13.77
		2	22.47	13.31
3	Alkali treatment cottonii	1	20.37	14.95
		2	21.09	14.22
4	Sheet Carrageenan	1	11.27	21.20
		2	10.67	22.05

In Table 1 shows that the water content of dried seaweed and dried seaweed freshwater produced ranged from 22.14 to 24.94%. The maximum water content for the products seaweed *Euचेuma* sp. dried by 32% (Suryaningrum, 2008). This means dried seaweed produced in this activity has met the quality criteria of dried seaweed. Patipeilohy (2010) reported that *E. cottonii* seaweed given alkali treatment has a water content of 10.24% and ash content of 19.30%.

Quantitatively, the ash content is inversely proportional to the water content of foodstuffs, in which the lower the water content of the material, the higher ash content (Winarno, 1996). Sheet Carrageenan has the lowest water content, but has the highest ash content compared to other products. SRC product ash content (alkali treated cottonii and carrageenan) generated in this activity have met the quality standards set by FAO, namely (15-40%), EEC (15-40%) and FCC (max. 35%) (Yunizal, 2004 ).

According Suryaningrum (2008), the water content of the sheet carrageenan products ranged between 10-12%, while the ash content ranging between 18-23%. Thus, sheet carrageenan produced by Osi Island business group has met quality criteria expected. Sangadji research results, (2009) reported that the characteristics of ATC seaweed *E. cottonii* obtained from hamlet osy has a water content of 17:10%, ash content of 15.77%, 35.54% for sulfate content and viscosity of 183.10 cps.

## Conclusion

The water content of dried seaweed and dried seaweed freshwater produced ranged from 22.14 to 24.94%. This means the resulting dried seaweed has met the quality criteria of dried seaweed.

1. The water content of the sheet carrageenan products ranged between 10-12%, while the ash content ranging between 18-23%., sheet carrageenan produced has met the quality criteria expected.

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