

## ANALISIS CEMARAN FISIK, LOGAM BERAT, DAN MIKROBIOLOGI PADA RUMPUT LAUT KERING JENIS

*Sargassum* sp. DAN *Gracilaria* sp. DI INDONESIA

### INTISARI

Oleh :

AZIZAH MIFTA RAMADHANI

19/440895/TP/12449

Indonesia merupakan salah satu produsen ekspor rumput laut terbesar kedua setelah China. Beberapa jenis rumput laut yang diekspor adalah *Sargassum* sp. dan *Gracilaria* sp banyak digunakan sebagai pengolahan pangan dan beberapa industry seperti kosmetik, farmasi, dan kedokteran. Tujuan dari penelitian ini adalah mengetahui cemaran fisik, logam berat, mikrobiologi pada rumput laut kering jenis *Sargassum* sp. dan *Gracilaria* sp. di Indonesia.

Penelitian dilakukan dengan menguji cemaran fisik (*Impurities* dan kadar air), dan menguji cemaran logam berat, dan menguji cemaran mikrobiologi (Angka Lempeng Total, *Staphylococcus aureus*, *Coliform*, *Vibrio cholerae*, *Escherichia coli*, *AFPA*, *Kapang Khamir*, dan *Salmonella*) menggunakan metode pada SNI No.2332 tentang Cara Uji Mikrobiologi pada Produk Perikanan. Hasil pengujian cemaran fisik menunjukkan sampel memiliki kadar melebihi SNI pada uji *Impurities* sebanyak 33%, dan uji kadar air sebanyak 100%. Sedangkan, cemaran logam berat persentase sampel yang tercemar adalah merkuri sebanyak 0%, cadmium 80%, Arsen 100%, Timah 0%, dan Timbal 73%. Sedangkan, hasil pengujian cemaran mikrobiologi pada rumput laut kering adalah Angka Lempeng Total (ALT) kisaran  $10^2$ - $10^5$  CFU/gram, *Staphylococcus aureus* kisaran  $10^2$ - $>10^3$  CFU/gram, *Coliform* kisaran 21->1100 APM/gram, *Vibrio cholerae* yakni 27% sampel tercemar, *Escherichia coli* sejumlah 0% , *Salmonella* sp. sampel 0% tercemar 0%, *AFPA* 40% berada kisaran  $10^2$  –  $10^3$  CFU/gram, dan kapang khamir 46% berada kisaran  $10^1$  -  $10^4$  CFU/gram.

Hasil pengujian cemaran mikrobiologi dapat dijadikan sebagai bahan pertimbangan bagi petani rumput laut dan penambahan parameter batas mikrobiologi SNI rumput laut kering. Hasil pengujian fisik dan logam berat dapat dijadikan sebagai bahan tolak ukur untuk melakukan perbaikan baik dari pembudidayaan hingga pasca panen dikarenakan melebihi batas yang ditetapkan oleh SNI 2690:2015 tentang rumput laut kering.

Kata kunci : Rumput laut kering, *Sargassum* sp., *Gracilaria* sp., cemaran mikrobiologi, kadar air, impurities, cemaran logam berat

PHYSICAL, HEAVY METAL, AND MICROBIOLOGICAL  
CONTAMINATION ANALYSIS ON DRY SEAWEED *Sargassum*  
sp. AND *Gracilaria* sp. IN INDONESIA

**ABSTRACT**

AZIZAH MIFTA RAMADHANI

19/440895/TP/12449

Indonesia is one of the second largest seaweed export producers after China. Some types of seaweed that are exported are *Sargassum* sp. and *Gracilaria* sp which is widely used in food processing and in several industries such as cosmetics, pharmaceuticals and medicine. The purpose of this study was to determine the microbiological, physical and heavy metal contamination in dry seaweed of the type *Sargassum* sp. and *Gracilaria* sp. in Indonesia.

The study was conducted by testing microbiological contamination (Total Plate Count, *Staphylococcus aureus*, *Coliform*, *Vibrio cholerae*, *Escherichia coli*, AFPA, Yeast Mold, and *Salmonella* sp.) using the method in SNI No. 2332 concerning Methods for Microbiological Testing of Fishery Products, testing for physical impurities (Impurities and Moisture Content), and test for heavy metal contamination. The results of the physical test showed that the sample had levels exceeding SNI in the Impurities test by 33%, and the moisture content test by 100%. Meanwhile, heavy metal contamination, the percentage of polluted samples was 0% mercury, 80 % cadmium, 100% arsenic, 0% tin, and 73% lead.. Therefore, The results of microbiological contamination testing on dried seaweed were Total Plate Number (ALT) in the range of  $10^2$  -  $10^5$  CFU/gram, *Staphylococcus aureus* in the range of  $10^2$ -> $10^3$  CFU/gram, *Coliform* in the range of 21-> 1100 APM/gram, *Vibrio cholerae* in 27 % polluted samples, *Escherichia coli* in 0%, *Salmonella* sp. in 0% samples were polluted, AFPA in 40% ranged from  $10^2$ - $10^3$  colonies/gram, and yeast molds in 46% ranged from  $10^1$  - $10^4$  colonies/gram.

The results of testing for microbiological contamination can be used as a reference material for seaweed farmers and the addition of SNI microbiological limit parameters for dried seaweed. The results of physical testing and heavy metals can be used as benchmarks to make improvements both from cultivation to post-harvest due to exceeding the limit set by SNI 2690: 2015 concerning dried seaweed.

Keywords : Dried seaweed, *Sargassum* sp., *Gracilaria* sp., microbiological contamination, water content, impurities, heavy metal contamination