

**The Level of Nori's Relief Made From Raw
Seaweed Mixed
*Gelidium Sp And Eucheuma cottonii***

ABSTRACT

Aims: This research aims to obtain the most preferred nori made from the mixture of *Gelidium sp* and *Eucheuma cottonii* seaweed.

Study design: Research was conducted

Place and Duration of Study: The Laboratory of Fisheries Product Processing at the Faculty of Fisheries and Marine Sciences, Padjadjaran University and the Laboratory of Biotechnology and Biotechnology Research LPPM Bogor Agricultural Institute from February to March 2019.

Methodology: The method used in this research was an experimental method with 5 mixed treatments of *Gelidium sp* and *Eucheuma cottonii* with 20 semi-trained panelists were repeated. The treatment was a mixture of *Gelidium sp* and *Eucheuma cottonii* 90%: 10%, 80%: 20%, 70%: 30%, 60%: 40% and 50%: 50%. The observed variables consisted of hedonic tests namely appearance, aroma, texture, taste. Chemical tests are water content and crude fiber.

Results: The results showed that the mixture of nori made from seaweed *Gelidium sp* and *Eucheuma cottonii* 70%: 30% was preferred over other treatments, with a moisture content of 15.35% and the crude fiber content of 5.36%. The median value of hedonic nori test of *Gelidium sp* and *Eucheuma cottonii* on appearance and texture 9 is very preferred, the value of aroma and taste 7 is preferred.

Conclusion the mixture of nori made from seaweed *Gelidium sp* and *Eucheuma cottonii* 70%: 30% is most preferred by panelists.

Keywords: [Mixture, *Eucheuma cottonii*, *Gelidium sp*, Seaweed]

1. INTRODUCTION

Seaweed is a marine plant that is classified as multicellular algae (algae) thallophyta division. Unlike perfect plants in general, seaweed has no roots, stems, and leaves. Seaweed lives on the ocean floor that can be penetrated by sunlight so that a variety of colors are then used to classify seaweed. In general, edible seaweed is a type of blue algae (Cyanophyceae), green algae (Chlorophyceae), red algae (Rhodophyceae) and brown algae (Phaeophyceae) [5].

27 Considering the availability of abundant types of seaweed and still very limited management,
28 the research of Gelidium sp. Nori products. conducted to meet food products from local
29 seaweed species. Gelidium sp. currently available in Indonesia is only used as a producer so
30 that what is important in the food and non-food industries. Utilization of Gelidium sp.
31 apparently not only used as industrial raw materials but also can be developed into food
32 products such as nori.

33
34 In general, Gelidium sp. containing 14 - 20 grams of water, 0.4 grams of fat from 16.1 to 12.5
35 grams of protein, 10.5 to 13.5 grams of fiber and 3.5 to 8.5 grams of mineral in 100 grams
36 [21]. Gelidium sp. including one type of seaweed that produces agar. Gelatin content in
37 Gelidium sp. ranges from 12-48% [11] The quality of agar depends on the strength of the
38 raw material which can be influenced by several factors such as: intrinsic factor (type of
39 seaweed), environmental factors (temperature and salinity during seaweed growth),
40 harvesting factor (temperature, mixing with other types of seagrasses), post-harvest
41 (seaweed storage conditions obtained).

42
43 Eucheuma cottonii is one type of red seaweed (Rhodophyceae) which is widely cultivated by
44 the people of Indonesia. This type of red algae has been renamed Eucheuma alvarezii [6].
45 However, because the carrageenan produced is the carrageenan kappa fraction, this
46 species is taxonomically changed to Kappaphycus alvarezii, the name of the region "cottonii"
47 is generally better known in the world of national to international trade [4].

48
49 Carrageenan, which is a hydrocolloid compound which is a long chain polysaccharide
50 compound extracted from seaweed species of caraginophytes, such as Eucheuma sp.,
51 Chondrus sp., Hypnea sp., And Gigartina sp. Carrageenan can be divided into three types
52 namely iotakaraginan, kappa-carrageenan, and lambda-carrageenan. All three differ like of
53 the gel and its reaction to protein. Kappa-carrageenan forms a strong gel (rigid), whereas
54 iotakaraginan forms a gel that is smooth (flaccid) and easily formed. Also, each carrageenan
55 is produced by different types of seaweed. The solubility of carrageenan in water is
56 influenced by several factors, including temperature, the presence of other organic
57 compounds, salt that dissolves in water, and the type of carrageenan itself [10].

58 59 **2. MATERIAL AND METHODS**

60 61 **2.1 Time and Place of Research**

62 The research was conducted from February 2019 until March 2019. Organoleptic tests were
63 carried out in the Laboratory of Fisheries Product Processing Faculty of Fisheries and
64 Marine Sciences, University of Padjadjaran. Physical tests and chemical tests conducted at
65 the Laboratory of Research and Biological Resources and Biotechnology Research Institute
66 at the Society (LPPM), IPB, between February 2019 and March 2019.

67 68 **2.2 Materials and Tools**

69 The equipment and materials used to make nori in this research are as follows: Blender
70 Basin. Baking sheet. Filter. Electric scales. Plastic Spatula Oven. Beaker glass Small bowl.
71 Label sticker. Seaweed (Gelidium sp.) Seaweed (Eucheuma cottonii) Rice water Clean water
72 Salt pepper Sugar Flavoring Sesame oil. Olive oil. Fish sauce.

73 74 **2.3 Research methods**

75 The results of the hedonic test were statistically analyzed using the Friedman Test and the
76 Bayes Method. This formulation is divided into five parts, namely:

- 77
78 a. Gelidium sp. : Eucheuma cottoni 90%: 10%
79 b. Gelidium sp. : Eucheuma cottoni 80%: 20%
80 c. Gelidium sp. : Eucheuma cottoni 70%: 30%
81 d. Gelidium sp. : Eucheuma cottoni 60%: 40%
82 e. Gelidium sp. : Eucheuma cottoni 50%: 50%

83 **2.4 Procedure**

84 Research procedures according to [20] that have been modified. This research procedure
85 begins with the preparation of tools and materials, preparation of nori, treatment and
86 observation. The following are the stages. Preparation of dried seaweed material *Gelidium*
87 sp. and *Eucheuma cottonii*, weighed as much as 50 grams and cleaned of dirt attached. The
88 second stage, namely preparation for making nori, starts from soaking in rice water with the
89 aim to soften the dried seaweed network. Rice water used is 1000 mL, soaking is done for 1
90 x 24 hours. Then the next day, soaked in clean water for 2 x 24 hours, every 1 x 24 hours
91 clean water must be replaced immediately. Clean water used as much as 1500 mL.
92 Seaweed that has been cleaned, then weighed according to treatment and added as much
93 as 200 ml of clean water, then crushed seaweed using a blender for 2 minutes. The puree is
94 put into a baking dish and seasoned with salt such as 0.2 g, 1 gram sugar, 0.3 g flavoring,
95 pepper 0.2 g, olive oil 2 mL, sesame oil 2 mL and fish sauce 2 mL. Puree is cooked using
96 low heat for 10 minutes. Puree was measured using a measuring cup as much as 80 mL and
97 poured on a baking sheet. The pan used has a size of 17 x 23 cm (outer size) and 15 x 20
98 cm (inner size). The puree in a baking pan was flattened using a plastic spatula. The puree
99 thickness is calculated approximately 1 mm. Put in the oven with a setting of 70°C for 3
100 hours. The final stage in this research is observation, testing is done that is the hedonic level
101 test

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103 **2.5 Observation Parameters**

104 The parameters for observing the level of preference include color, aroma, texture and taste.
105 Tested on 20 semi-trained panelists. Panelists can respond with varying degrees of liking.
106 The scale used in organoleptic (hedonic) tests ranges from 1-9, namely: 1 (very dislike), 3
107 (dislike), 5 (neutral), 7 (like), 9 (very like). The acceptance limit for panelists' preference level
108 is ≥ 5 , i.e. if the test product has a value equal to 5 or more than 5 then the test product is
109 liked by the panelists and if the product being tested receives a value of ≤ 5 then the product
110 is declared not accepted by the panelists [18].

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112 **2.6 Data Analysis**

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114 Analysis for organoleptic testing uses a two-way analysis of the Friedman test variance with
115 the Chi-square test. If the price of $H_c < x2\alpha (K-1)$, then accept H_0 and reject H_1 , and if the
116 price of $H_c > x2\alpha (K-1)$, then H_0 is rejected and H_1 is accepted. If H_1 is accepted, then the
117 treatment gives a real difference and the test is continued to find out the median values that
118 are not the same and to find out the differences between treatments with multiple
119 comparison tests [12].

120 The test method used to determine the selected product is the Bayes method. The Bayes
121 Method is one technique that can be used to analyze in the best decision-making of many
122 alternatives to producing gains that take into account various criteria [12]. The results
123 obtained are then discussed descriptively.

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125 **2.6.1 Hedonic Test**

126 Hedonic test is a test that aims to determine the level of consumer preferences for a product.
127 There were 20 panelists in the hedonic test. Tests on the level of preference include
128 appearance, aroma, taste and texture. Consumer favorite values, namely: 9 (really like); 7
129 (likes); 5 (neutral / ordinary); 3 (don't like it); and 1 (very dislike) [18].

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131 **2.6.2 Chemical Test**

132 Chemical tests are carried out for the most preferred products. Chemical tests on nori
133 include the following:

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135 **2.6.2.1 Moisture Content (AOAC 1995)**

136 A total of 1 gram of sample was weighed in a saucer. Put it in the oven at 105 ° C, for 8
137 hours, then weigh the water content calculated using the formula:

138 **2.6.2.2 Crude Fiber Levels (AOAC 1995)**

139 A total of 1 gram of sample was dissolved with 100 ml of H₂SO₄ 1.25%, heated to boiling
140 and then continued with destruction for 30 minutes then filtered with filter paper and with the
141 Buchner curving deadlock. 3 times . The residue was redistributed with 1.25% NaOH for 30

142 minutes. Then filter with the above method and rinse successively with 25 ml of boiling
 143 1.25% H₂SO₄, 25 ml of water three times and 25 ml of residual alcohol and filter paper
 144 transferred to a porcelain cup and dried in a 130°C oven for 2 hours after cold residue along
 145 with the porcelain cup are weighed (A), then put in a 600°C furnace for 30 minutes, cooled
 146 and re-weighed (B).

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149 Information:

150 W = weight of residue before burning in the furnace

151 = A - (weight of cup filter paper): A: residual weight + filter paper + cup

152 W₀ = residual weight after burning in the furnace

153 = B - (cup weight): B: residual weight + cup

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155 3. Results and Discussion

156 3.1 Hedonic Test

157 3.1.1 Appearance

158 Organoleptic tests include appearance, aroma, texture and taste. Preference test is
 159 conducted to determine the level of panelists on the products produced. Visibility is the first
 160 parameter that is pleasant to see from a product. Observation of nori appearance from
 161 seaweed *Gelidium* sp and *Eucheuma cottonii* presented in table 1.

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**Table 1. Average Nori Appearance Based on Seaweed mix
Gelidium sp and *Eucheuma cottonii***

Condition Mix <i>Gelidium</i> sp.(%) dan <i>Eucheuma cottonii</i> (%)	Median	Average
90 : 10	3	3,5 a
80 : 20	5	5,7 b
70 : 30	9	8,2 c
60 : 40	5	5,3 b
50 : 50	6	5,9 b

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Note: The treatment that has a real level with the same letter shows no significant difference according to the F test at 95% confidence level

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The highest average value of panelists' preference level for the appearance of nori from a mixture of *Gelidium* sp. and *Eucheuma cottonii*, in *Gelidium* sp. and *Eucheuma cottonii* 70%: 30% with a dark brownish brown appearance and a flatter surface or not many holes, while the lowest average in the treatment of nori mixture *Gelidium* sp. and *Eucheuma cottonii* 90%: 10% with dark green appearance and uneven surface with many holes. Nori treatment of *Gelidium* sp. and *Eucheuma cottonii* 80%: 20% with a green appearance and uneven surface and many holes on the nori sheets. Nori treatment of *Gelidium* sp. and *Eucheuma cottonii* 60%: 40% with a rather light green appearance and uneven surface and many holes on the nori sheets. Nori treatment of *Gelidium* sp. and *Eucheuma cottonii* 50%: 50% with light green appearance and a flat surface on nori sheets.

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180 3.1.2 Aroma

Aroma is one of the factors that influence panelists on a product. Aroma assessment aims to determine the deliciousness of the product based on the sense of smell. The results of observations of nori aroma from *Eucheuma cottonii* seaweed are presented in Table 2.

Table 2. Average Aroma of Nori Based on a mixture of Seaweed *Gelidium* sp and *Eucheuma cottonii*

Condition Mix <i>Gelidium</i> sp. (%) dan <i>Eucheuma cottonii</i> (%)	Median	Average
90 : 10	5	5,4 a

80 : 20	5	5,7 a
70 : 30	7	6,1 a
60 : 40	6	6,0 a
50 : 50	5	5,6 a

187 Note: The treatment that has a real level with the same letter shows no significant difference
188 according to the F test at 95% confidence level
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190 Panelist assessment of the average nori aroma of *Gelidium* sp. and *Eucheuma cottonii* with
191 differences in addition have an average range of 5.4 to 6.1 the average value of the highest
192 aroma that is at the addition of 70%: 30% with a distinctive aroma of seaweed with a
193 flavoring aroma, while the lowest value is the treatment 90%: 10% with less fragrant aroma
194 but still specific seaweed odor. The aroma of seasoning in the manufacturing process is
195 slightly more dominant than the typical aroma of seaweed. The test results obtained from the
196 Friedman statistical test showed that the 90%: 10% treatment to 50%: 50% treatment were
197 not significantly different. It is suspected that in each treatment the scent that is less smelled
198 from the processing.
199

200 According to [15], seasonings are all additives that improve the flavor of the product and can
201 affect the aroma. However, according to [14] that the aroma that can be felt by the sense of
202 smell depends on the ingredients and ingredients added to the food. The aroma that can be
203 generated by volatile components, but the volatile component can be lost during the
204 processing process, especially heat
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206 3.1.3 Texture

207 Texture is one of the parameters of consumer preference for food products. Evaluation of
208 this parameter aims to determine the level of panelist acceptance of the level of elasticity or
209 flexibility of a product that can be assessed by the sense of touch, namely from the
210 stimulation of touch. Hedonic test results on the average nori texture of *Gelidium* sp. and
211 *Eucheuma cottonii* are presented in table 3.
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213 **Table 3. Average Nori Surface Texture Based on Treatment of Seaweed Mix *Gelidium***
214 **sp. And *Eucheuma cottonii***

Condition Mix <i>Gelidium</i> sp. (%) dan <i>Eucheuma cottonii</i> (%)	Median	Average
90 : 10	3	4,0 a
80 : 20	7	6,7 bc
70 : 30	9	8,3 c
60 : 40	6	5,8 b
50 : 50	6	6,1 b

215 Note: The treatment that has a real level with the same letter shows no significant difference
216 according to the F test at 95% confidence level
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219 Panelist assessment of the nori texture of *Gelidium* sp. and *Eucheuma cottonii* averaged
220 between 4.0 and 8.3, meaning that the texture of some treatments on nori mixture *Gelidium*
221 sp. and *Eucheuma cottonii* can still be accepted by people who are judges. The average
222 value of nori texture of *Gelidium* sp. and *Eucheuma cottonii* with the addiction treatment of
223 60%: 40% and 50%: 50% were not significantly different from the treatment of 80%: 20%,
224 while the treatment of *Gelidium* sp. and *Eucheuma cottonii* 70%: 30% received relatively
225 higher values and significantly different from *Gelidium* sp. and *Eucheuma cottonii* 60%: 40%
226 and 50%: 50% but not significantly different from the treatment of 80%: 20%. The highest
227 average value of mixed nori textures of 70%: 30% has a value of 8.3 with a median of 9
228 which has a flexible and elastic texture. Whereas nori mixture *Gelidium* sp. and *Eucheuma*
229 *cottonii* with 90%: 10% treatment had the lowest median value of 3 and an average of 4.0.

230 This means that the treatment of 90%: 10% is significantly different from the treatment of
231 80%: 20%, 70%: 30%, 60%: 40%, and 50%: 50%.

232
233 According to [7] the largest component of food is water 55-85%, so that the component can
234 affect the structure and texture of the processed foodstuff. *Eucheuma cottonii* ripening which
235 aims to remove carrageenan from the cell wall until the extraction process is modified to form
236 a film-like texture.

237 238 **3.1.4 Taste**

239 Taste is also an important factor in the organoleptic assessment of a product. Consumer
240 acceptance of food products on these characteristics is usually used as a determining factor.
241 Taste assessment aims to determine the panelist's assessment of a product using the taste
242 buds.

243
244 According to [18] the acceptance of each panelist to a type of product is generally strongly
245 influenced by the characteristics of taste, although the other parameters are good, if it has a
246 disliked taste then the product will be rejected. The average hedonic test on the nori flavor of
247 *Gelidium sp.* and *Eucheuma cottonii* are presented in table 4.

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249 **Table 4. Average Nori Surface Sense Based on Treatment**
250 ***Gelidium sp.* And *Eucheuma cottonii***
251

Condition Mix <i>Gelidium sp.</i> (%) dan <i>Eucheuma cottonii</i> (%)	Median	Average
90 : 10	5	5,0 a
80 : 20	7	6,4 bc
70 : 30	7	7,2 c
60 : 40	6	6,0 ab
50 : 50	7	6,0 ab

252 Note: The treatment that has a real level with the same letter shows no significant difference
253 according to the F test at 95% confidence level

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255 Based on panelists' assessments of nori flavors ranging from 5.0 to 7.2 it means that the
256 product is neutral or ordinary and preferred. The lowest average value occurs in the
257 treatment of adding 90%: 10% and the average is preferred in the treatment of 80%: 20%,
258 70%: 30%, 60%: 40% and 50%: 50%. Nori treatment of *Gelidium sp.* and *Eucheuma cottonii*
259 90%: 10% were not significantly different from the treatment 60%: 40% and 50%: 50% and
260 the treatment was not significantly different from the 80%: 20% treatment. However, this
261 treatment was not significantly different from 70%: 30% treatment. The 70%: 30% treatment
262 was significantly different from the 90%: 10% treatment 80%: 20%, 50%: 50% and the 70%:
263 30% treatment got the highest average of 7.2.

264
265 In general, *Gelidium sp.* has a protein content of 16.1 - 12.5 gr [21], *Eucheuma cottonii* has a
266 protein content of 2.69% [23] that can cause the formation of a good taste in the mixture's
267 nori. during the heating process, the protein will be denatured into free amino acids and one
268 amino acid, glutamic acid so that it can cause a delicious taste [22].

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270 Most seaweeds contain quite a lot of aspartic acid and glutamic acid in the total composition
271 of amino acids [8]. Types of seaweed tested in vitro from soluble base proteins and water
272 including green seaweed (Chlorophyta), red (Rhodophyta) and brown (Phaeophyta)

273 274 **3.2 Bayes Method**

275 The data of the pair comparison test results on the criteria of appearance, aroma, texture
276 and taste of the mixture of *Gelidium sp.* and *Eucheuma cottonii* from 20 panelists.
277 Completion of the results of the pairwise comparison was done by manipulating the

278 weighting matrix of the appearance, aroma, texture, and flavor characteristics of Gelidium
279 sp. and Eucheuma cottonii.

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Table 5. Weight Criteria for Nori Gelidium sp. And Eucheuma cottonii

Criteria	Weight criteria
Appearance	0,228
Aroma	0,097
Texture	0,140
Flavor	0,534

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Based on the table above, the calculation of criteria weights ranging from appearance to taste from nori mixture Gelidium sp. and Eucheuma cottonii produce the value that taste is the most important criterion for determining the final decision of a panelist in Nori Gelidium sp. and Eucheuma cottonii with a baseline weight criteria value of 0.534, while panelists assessed the appearance and texture with criteria weights of 0.228 and 0.140 followed by aroma criteria weight values of 0.097. This shows that other assessments are good but if the taste of the mixture is Gelidium sp. and Eucheuma cottonii is not favored by panelists, the product will be rejected by panelists.

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Bayes method is one of the methods used to analyze in making the best decision of many alternatives or treatments by considering criteria. The calculation results in determining the best treatment by considering the criteria for appearance, aroma, texture and taste of the mixture of Gelidium sp. and Eucheuma cottonii are presented in table 6.

Table 6. Calculation of the Bayes Method

The Conditions	Criteria				Alternative Value	Priority Value
	Appearance	Aroma	Texture	Flavor		
A	3	5	3	5	4.26	5
B	5	5	7	7	6.35	3
C	9	7	9	7	7.74	1
D	5	6	6	6	5.77	4
E	6	5	6	7	6.44	2
Weight Criteria	0.228	0.097	0.140	0.534		

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The calculation table using Bayes method shows that the mixture of Gelidium sp. and Eucheuma cottonii 70%: 30% obtained the highest alternative value of 7.74 followed by Gelidium sp. and Eucheuma cottonii 50%: 50% have an alternative value of 6.44, followed by Gelidium sp. and Eucheuma cottonii 80%: 20% have an alternative value of 6.35, followed by Gelidium sp. and Eucheuma cottonii 60%: 40% have an alternative value of 5.77, and the lowest value of 4.26 by Gelidium sp. and Eucheuma cottonii 90%: 10%. based on the observed preference test parameters, differences in the mixture of nori Gelidium sp. and Eucheuma cottonii with a ratio of 70%: 30% is the best treatment and is preferred by panelists.

3.3 Chemical Testing

3.3.1 Moisture Content

Moisture test was carried out on Nori Gelidium sp. by mixing Eucheuma cottonii 70%: 30%. The results of the analysis of the water content obtained in the mixture of Gelidium sp. and Eucheuma cottonii which is 15.35%. Drying nori using oven results in some free water coming out and evaporating, resulting in a decrease in water content. The low moisture

318 content of nori products influences the texture of crispness or suppleness in nori. When
 319 compared to general commercial nori products (4.47%), the water content of the mixture of
 320 Gelidium sp. and Eucheuma cottonii obtained different results. This shows that the type of
 321 seaweed affects the water content of nori products. Different seaweed affects the amount of
 322 water content that is bound to fiber.

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3.3.2 Crude Fiber Levels

325 The level of crude fiber test was only carried out on the research of nori mixture Gelidium sp.
 326 and Eucheuma cottonii selected or the best results in organoleptic (hedonic) tests. The
 327 results of crude fiber analysis are worth 5.36% while the fiber content in Pophyra sp. Nori is
 328 7.5%. The difference in fiber content between nori mixture Gelidium sp. and Eucheuma
 329 cottonii with nori Porphyra sp. caused by the fiber content in the product raw material. Even
 330 this agrees with research [16] that the mixture of Eucheuma cottonii and Ulva lactuca
 331 contains different ingredients from commercial nori in general.

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3.4 Overall Observation Results

334 The overall results of observations on the difference in comparison between nori mixture of
 335 seaweed types Gelidium sp. and Eucheuma cottonii are presented in table 7 below.

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Table 7. Overall Observations

Observations	90% :10%	80%:20%	70%:30%	60%:40%	50%:50%
Hedonic					
Appearance	3	5	9	5	6
Aroma	5	5	7	6	5
Texsture	3	7	9	6	6
Flavor	5	7	7	6	7
Moisture Content	-	-	15,35%	-	-
Crude Fiber Content	-	-	5,36%	-	-
Alternative Value	4,26	6.35	7,74	5.77	5.44

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340 The hedonic test results showed that the treatment of making nori mixture Gelidium sp. and
 341 Eucheuma cottonii 70%: 30% with a different mixture of each addition of Gelidium sp. and
 342 Eucheuma cottonii is the most preferred panelist and has the highest value. But in the
 343 treatment of mixture Nori Gelidium sp. and Eucheuma cottonii 90%: 10% appearance and
 344 texture of this treatment were rejected by the panelists, but the aroma and taste are still
 345 neutral.

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347 Chemical test results stated 70%: 30% treatment on nori mixture Gelidium sp. and
 348 Eucheuma cottonii has a moisture content of 15.35% and crude fiber content of 5.36%. This
 349 is because by drying using an oven at a temperature of 70 0C able to evaporate enough
 350 water and not damage the levels of crude fiber contained in nori.

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352 Based on all the late parameters observed, especially when seen from the hedonic test the
 353 results of the whole treatment with different treatments. Nori mixture Gelidium sp. and
 354 Eucheuma cottonii 70%: 30% is the most preferred nori of various other treatments.

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356 **4. Conclusions**

357 Based on research results the treatment of adding a mixture of Gelidium sp. and Eucheuma
358 cottonii 70%: 30%, preferably panelists. Nori mixture Gelidium sp. and Eucheuma cottonii
359 70%: 30% has a value of appearance value of 9 which is most preferred with dark brownish
360 brownish characteristic, a flatter surface or not many holes, scent worth 7 means that it is
361 liked by the distinctive smell of seaweed with flavoring, texture value 9 with flexible and
362 elastic characteristics and taste worth 7 means it is preferred to have a bitter after-taste and
363 flavoring.

364

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