

Antioxidant Capacity Assay and Sensory Evaluation of Flavored Healthy Snack Composed from Nori of Green Grass Tree Leaves (*Premna Oblongifolia* Merr.)

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ABSTRACT

Nori is a popular Japan traditional food made from Red seaweeds and has unique characteristic is a crispy texture. In this research, Nori sheets was developed into flavored snack food, which are added with basic seasoning by different coating technique (greasing, dyeing, spraying) before dried with baking technique. The research aims to observe effect of different seasoning coating (greasing, dyeing, spraying) to the antioxidant capacity and organoleptic properties (color, texture, flavor) of flavored healthy snack composed from Nori of green grass tree leaves (*Premna Oblongifolia* Merr.). Data was analyzed using ANOVA and DMRT as subsequent test. Results showed that the IC50 of greasing was 95.367 ppm, dyeing was 80.905, and spray was 130.062 ppm. The difference of antioxidant capacity is due to the less existed condiment in the nori juice of grass green leaves, lowering capacity of antioxidants. There is no difference in hedonik quality of texture of green grass leaves, and the highest score is of 4.09 (pretty crisp – crispy) on brushing. There is the highest score in hedonik quality of taste of 4.26 (pretty tasty-tasty) on dyeing. There is the highest score hedonik the color of green grass leaves nori snack tree on dyeing with a score of 4.06. This score was significantly in contrast with brushing and spraying technique. The hedonik of texture showed no difference, with the highest score is on dyeing by of 4.26. The hedonik of taste showed significant difference among coating techniques, with the highest score found in brushing by of 4.10. Some suggestions are proposed to develop a snack of green grass tree leaves nori as healthy snacks, and further research to investigate the broken power of healthy snack composed from nori of green grass leaves, as well as its related water content.

Keywords: *nori, healthy snack, coating technique, antioxidant capacity*

I. PRELIMINARY

Nori is a traditional food that is consumed after being dried and baked (Riding et al., 2004 in Teddy, 2009). Nori came from Japan with the raw material of red seaweed *Porphyra* species. Nori is a food that has a high nutritional value, it is the primary reason why nori widely produced and consumed in Japan, China and Korea produce nori with a total production reached 2 billion pieces per year (Department of Marine and Fisheries 2007).

Nori-making process through the process of forming a gel that is formed by the gel-forming component (KPG) of seaweed. The gel is formed in the manufacture of nori obtained from the cooking process seaweed to issue a gel (Teddy, 2009). One of the plants that can form a gel is green grass jelly plant trees.

Results Basuki (2016), shows that the nori leaf tree with green grass jelly grass jelly leaf ratio of green trees and water of 1: 5 to have antioxidant capacity with IC50 values were higher than the 1:10 ratio and the ratio of 1:15.

Results Nurzaman (2016), shows that the ratio used is the ratio of green grass jelly leaves of trees and water 1:10 because the closest characteristics of nori with drying 3

hours. Nori leaf tree with long green grass jelly drying for 3 hours had a higher antioxidant capacity than the old drying for 4 hours and 5 hours with IC50 value of 79.858 ppm.

Nori used as a garnish and flavoring a wide variety of Japanese dishes, side dishes when eating rice, and materials snacks as *Senbei* (Teddy, 2009). In addition, nori many found on the market as a healthy snack that many kids love. In Indonesia, nori much needed especially in restaurants serving Japanese and Chinese dishes using nori. Nori is consumed today is imported from Japan, Korea, China and the United States.

Based on the above background, it is necessary to develop the manufacturing healthy snack nori is the result of the development of the results of the nori sheet of green grass jelly leaf trees that have been dried by the provision of seasoning and roasting so that it can be consumed as snacks that taste. Besides products that have health effects because it contains the antioxidant capacity of green grass jelly leaf trees and white seasoning.

Many note that the formula of seasoning in nori seaweed snack supermarket or average market using basic materials sesame oil and salt, and therefore the processing of toasted nori snack spice white base formula with different

techniques. The technique used is the technique of topical, dip and spray. Selecting these three techniques because they want to know the proper techniques of the different spices of nori snack market. Therefore do research titled "Antioxidant Capacity Analysis and Test Appearance Seasoned Nori Snack Cincau Green Leaves Trees (*Premna oblongifolia* Merr.).

II. METHOD

Material. Raw materials used for the manufacture of snack nori in this peelitian is a sheet of nori leaf green grass jelly and seasoning tree white powder. Besides using the three techniques of seasoning which dye technique, technique and technique topical spray.

Nori manufacture Cincau Leaf Green. The process of making nori leaf green grass jelly grass jelly begins with sorting green leaves, removal of bone leaves and wash thoroughly. Leaf green grass jelly further crushed using a blender and extracted using water at room temperature. The ratio of water to the leaf that is used is 10: 1, w / w. Extract the resulting molded using a mold nori (pan) size 30 cm x 40 cm that had been given filter cloth pads. The next process is drying at a temperature of 45-50 ° C in a drying oven for 3 hours.

Making the Basic Seasoning White. Formula basic white seasoning consisting of onions, garlic, nutmeg, coriander, pepper grains, salt, oil and water. All the ingredients in a blender together and cooked for 15 minutes, after which it was dried using a drying oven for 2 hours.

Nori Snack manufacture Cincau Leaf Green Tree. Snack nori used is nori leaf green grass jelly trees measuring 30 x 40 cm with a weight of 4 grams. Nori size is flavored with three different techniques

Oles techniques. technique Award This seasoning is done with the technique applied to the nori leaf tree green grass jelly. Method of administration pectin 2 g of white mixed with herbs 3 g dissolved in water to 12 ml. Rub seasoning at ½ (2 g) sheets of nori leaf tree green grass jelly. Once applied the green grass jelly leaf nori let stand for 5 minutes tree, roasted nori leaf tree with green grass jelly 110oC temperature for 7 minutes.

Dye Techniques. Techniques of this condiment made with nori dipped in seasoning. Method of administration pectin 2 g of white mixed with herbs 3 g dissolved in water to 12 ml. Enter ½ (2 g) sheets of nori leaf tree green grass jelly, grass jelly leaf green nori let stand for 5 minutes tree. Toasted nori leaf tree with green grass jelly 110oC temperature for 7 minutes.

Spray Technique. Techniques of this condiment made with nori sprayed with white seasoning. Nori used is ½ (2 g) sheets of nori. Nori leaves green grass jelly smeared tree pectin 2 g. After nori leaf tree green grass jelly smeared with pectin, nori green grass jelly leaf trees sprayed with white seasoning 3 grams dissolved in 12 ml of water. Nori green grass jelly leaves of trees allowed to stand for 5 minutes and then baked at a temperature of 110oC for 7 minutes.

Antioxidant Capacity Analysis. Nori snack antioxidant capacity was determined by DPPH method. This method is a method sderhana, fast and easy to screen multiple compounds radical trapping capacity, other than that this method proved to be accurate, effective and practical (Molyneux, 2003).

Appearance test. Analysis is conducted test hedonic quality (texture and flavor) and hedonic test (color, texture and flavor). The hedonic quality test texture 1 (not crispy) - 5 (crunchy). The hedonic quality test taste 1 (not savory) - 5 (savory). The hedonic test with a score of 1 (dislike) - 5 (love). Panelists used are student State University of Malang as many as 35 people with two repetitions.

Statistic analysis. Research data from two repetitions were statistically analyzed using ANOVA (Analysis of Variance) to determine the effect of treatment. If there is a difference between samples, analyzed its significance (p <0.05) using the Duncan Multiple (Duncan's Multiple Range Test).

III. RESULTS AND DISCUSSION

a) Antioxidant Capacity

Value of antioxidant capacity of green grass jelly snack nori leaf trees that have a high value are techniques of dyeing to 80.905 ppm (Table 1). Because seasoning stick on green grass jelly snack nori leaf tree more pervasive and content of antioxidant capacity in more seasoning deep full on green grass jelly snack nori leaf trees.

Table 1. Antioxidant capacity of snack nori composed from green grass tree leaves ((IC₅₀, ppm)

Technique	Replication		Average
	I	II	
Dyeing	81,644	80,167	80,905
Greasing	96,107	94,628	95,367
Spraying	130,062	129,568	129,815

b) Hedonic quality test of texture

The hedonic quality test (Fig 1) of texture highest are techniques of seasoning dip with a score of 4.26 (quite crispy - crunchy), because according to Riyanto et al (2014),

commercial nori have the rough texture, resembling a dark green colored paper and with a size of 10 x 19 cm and weighs 2.8 grams.

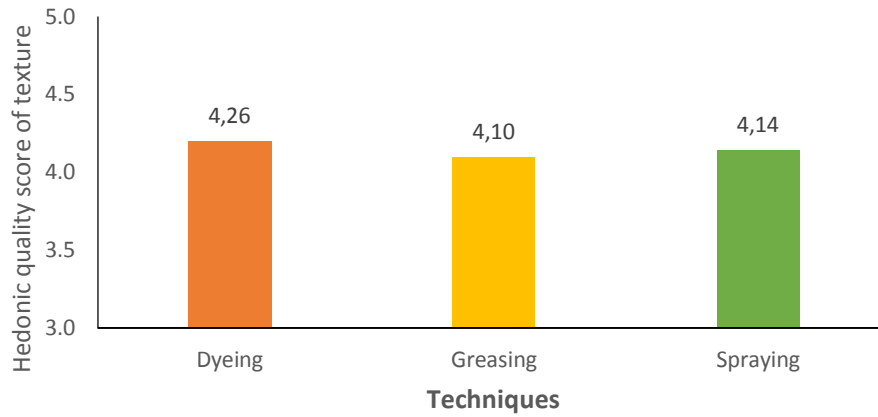


Fig 1. Hedonic quality score of texture of snack nori composed from green grass tree leaves

c) Hedonic quality test flavor

The hedonic quality test flavor of snack nori green grass jelly leaves of tall trees (Fig 2) was found in topical

technique has a score of 4.09 (enough - savory), because the nori snack products in general have a taste salty and savory (Syarifah, 2016).

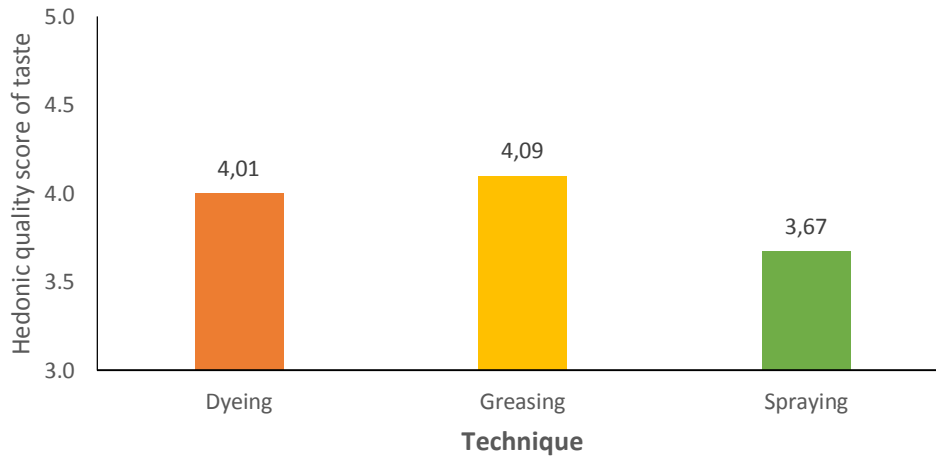


Fig 2. Hedonic quality score of taste of snack nori composed from green grass tree leaves

d) Hedonic score of color

Based on the hedonic score of color (Fig 3) can be seen that the green grass jelly snack nori leaf trees tend to be preferred by the panelists are techniques of seasoning dip

with a mean score of 4.06 (rather like - likes). The color of green grass jelly snack nori leaf panelists preferred tree is not too brown.

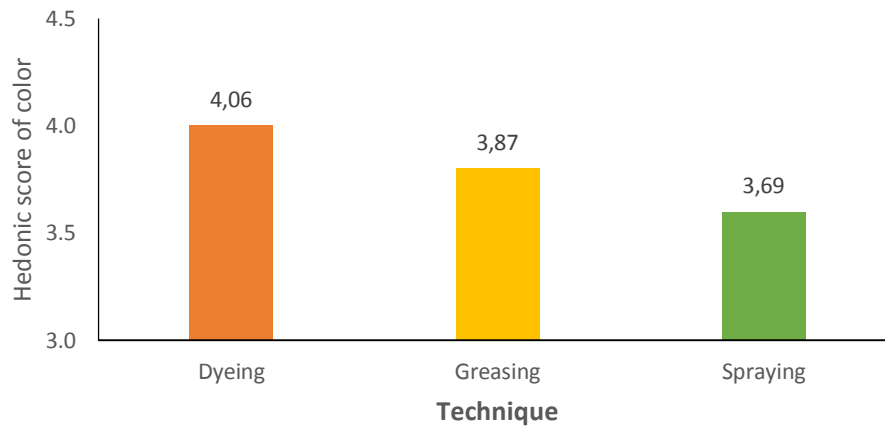


Fig 3. Hedonic score of color of snack nori composed from green grass tree leaves

e) Hedonic score of texture

Texture of green grass jelly snack nori leaf tree (Fig 4) with seasoning topical delivery techniques have the lowest level of preference 4,10 (rather like it - like it) because it has a

rough texture and seasoning sticks to snack nori leaf green grass jelly thicker tree resulting texture rough compared with green grass jelly snack nori leaf tree with other herbs delivery techniques.

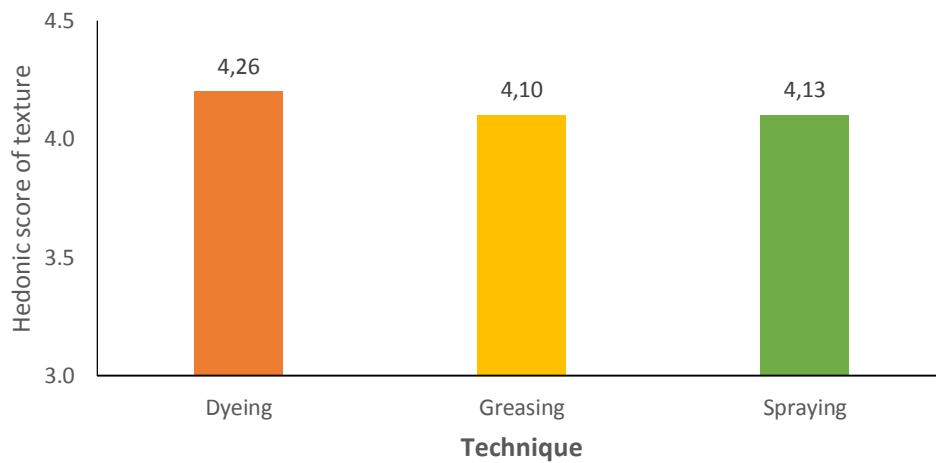


Fig 4. Hedonic score of texture of snack nori composed from green grass tree leaves

f) Hedonic score of taste

Based on the hedonic taste test (Fig 5) showed that green grass jelly snack nori leaf trees tend preferred by the

panelists, namely snack nori leaf tree with green grass jelly techniques of seasoning rub with a mean score of 4.10 (rather like - likes).

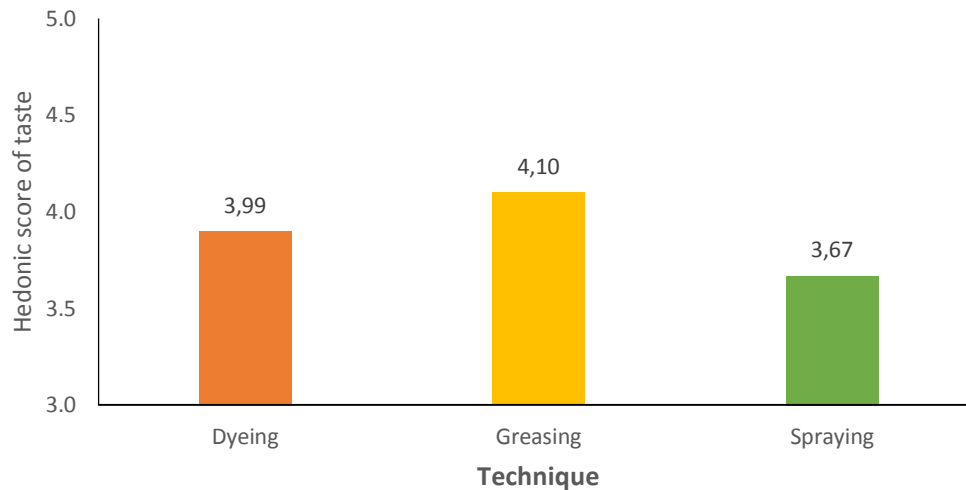


Fig 5. Hedonic score of taste of snack nori composed from green grass tree leaves

IV. CONCLUSION

The highest antioxidant capacity to the nori snack tree leaves green grass jelly contained in the techniques of seasoning dip with ic50 amounted to 80.905 ppm. Hedonic quality properties value at the highest texture nori snack tree leaves green grass jelly contained in the techniques of seasoning dip with a mean value of 4.26 (quite tasteful - savory). Hedonic quality properties value at the highest sense of green grass jelly snack nori leaf tree found in the condiment topical delivery techniques with 4,09 (quite tasteful - savory). Values hedonic properties of the highest color on green grass jelly snack nori leaf tree found in the condiment delivery techniques dye with a mean value of 4.06. Values hedonic properties of the highest texture on green grass jelly snack nori leaf tree found in the condiment delivery techniques dye with a mean value 4,26. Hedonic property values in the highest sense of nori snack tree leaves green grass jelly contained in the seasoning topical administration with a mean value of 4.10. Best technique award at the snack seasoning nori leaf tree is green grass jelly seasoning techniques of dyeing with the characteristics of the antioxidant capacity of 80.905 ppm. 4.26 hedonic quality nature texture (crunchy enough), the nature of the hedonic quality of taste 4.09 (crispy enough). Hedonic properties of color 4.6 (a bit like - like), hedonic properties of texture 4.

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