Natural Preservatives Application Form Nira Coconut Powder Made Against Green Betel Physical and Chemical Properties Coconut Sugar

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(Received: September 24, 2017, approved: October 26, 2017)

ABSTRACT

Solidified coconut sugar is produced by heating coconut sap so that it Becomes concentared. The sap is fermented Easily due to a microbial contamination. The sap damage can be prevented by adding preservatives. One of them was the natural green betel powder, ie a mixing line between powder and green betel powder. The objective of this study was to Determine the suitable formula of green betel powder that are Appropriate to produce the best phisycs and Chemsitry characteristics of ready made coconut sugar. A completelly times randomized design with three replications was used in this study. Factors that were experimented consisted of 1) The proportion of green batel powder comprised 0:25: 9.75, 0.5: 9.5, 0.75: 9.25 and the 1: 9 (w / w); 2). The amount of natural preservative addition into 1 liter of coconut sap that consisted of 1g and 2g were tested. Chemical and physical changes were Analyzed consisting of pH of sap coconout, water content, reduced sugar content, dust content, and coconout ready made textures. The results Showed that the use of the natural green betel was the most suitable formula to produce physics and chemistry in 0.75: 9:25 with the addition of 1 g / sap coconout.

Key word: Natural preservative, coconut sap, green betel, coconut sugar

INTRODUCTION

Coconut sugar is produced by processing the results leads sap of coconut flower. Up fresh juice has a sweet taste, fragrant and colorless and has degree of acidity to a pH of 6.0 to 6.5 (Setyamidjaja, 1991). The sweet taste of the sap due to the sugars sucrose, glucose and fructose, Nira also contains the water content of 88.40%; 10.27% sugar content; protein content of 0.41%; fat content 0.17%; 0.38% ash content and organic acids such as citric acid, tartaric acid, malic acid, succinic acid, lactic acid, fumaric acid and acid piroglutamat (Eka, 2008). Good nutrition content of the sap so the juice is a very suitable medium for microbial growth.

Juice quality is a very important factor to produce good sugar. Constraints are most commonly faced craftsmen coconut sugar is the shelf life is very short because the sap is fermented due to microbial contamination. Nira already undergone fermentation causes can not be processed into sugar print. In addition sap that has undergone fermentation acids and reducing sugars are relatively high, causing rapid burnt during heating, Such conditions obviously cause great economic losses for the craftsmen and reduce the amount of palm sugar production as a whole. Therefore, the occurrence of microbial contamination should be kept to a minimum.

To prevent damage due to contamination microbial juice, sugar craftsmen usually add preservatives are often known as "laru". The

preservatives used may be natural or synthetic materials. Synthetic preservatives that are widely used sugar craftsmen are sodium metabisulfite (C6H18NNaSi2) or sulfite (Na2S2O5). Among these sulfites sugar craftsmen they often refer to as medicine sugar. The use of synthetic preservatives among craftsmen still growing because of sulfite effective as antimicrobial, easy to come by on the market, the price is affordable and the lack of understanding and awareness of the dangers of sulfite craftsmen.

According to Jusuf (1984), the recommended limits in the use of sodium metabisulfite is 200-300 ppm, but farmers generally put chemical preservatives that exceeds the maximum threshold that can be harmful to health. Nurjanah et al. (1991) state that the sulfites can disrupt the human respiratory tract (especially asthmatics) and can cause death. Therefore it is necessary to look for alternative natural preservatives that have a strong microbial inhibition, are available in the community and practical in its consumer.

One potential natural ingredients that can be used for preservative coconut sap is green betel. This plant is easily cultivated, supply is abundant and contains active components such as alkaloids, tannins, phenols and steroid that acts as an antimicrobial compound (Suliantari, 2009). Up to now there is no natural preservatives coconut sap formulated in the form of powder. This study aims to assess the use of natural preservative made from betel leaf powder form of the physical and chemical properties of coconut sugar print.

RESEARCH METHODS

1. Tools and materials

The main material used in this study is the green betel powder, powdered quicklime and juice. While the equipment used was dryers, blenders, sieves, knives, Pongkor and a set of equipment to process palm sugar.

2. implementation research

a. Making the green betel natural preservative

Betel green (leaves and stems) are cleaned with water and drained, chopped and then dried with a dryer cabinet at a temperature of 50 ° C to dry broken. Furthermore, betel dry blended and sieved (60 mesh) to obtain the powder of dried green betel homogeneous. Quicklime sorted, ground and sieved (60 mesh) to obtain a homogeneous powder chalk. Green betel natural preservative made by mixing powdered green betel and lime powder in certain proportion and homogenized.

b. Application of natural preservatives on the green betel palm sap

Natural preservatives are added to the green betel Pongkor produce 1 liter of coconut sap as much as 1 and 2 g. The results of the coconut sap that has been given a natural preservative green betel observation coconut sap pH and volume, then immediately processed into sugar palm print.

c. Coconut sugar production printing

Nira filtered immediately put in a pan, then cooked at a temperature of 110 ° C while pengadukan.Nira cooked performed over time the color will be more brown and bubbles sap will be dropped. Cooking the sap stopped until the point of end point, namely at a temperature of 105-110 ° C. Nira that have been cooked immediately removed from the stove and keep stirring until concentrates the sap begins to cool. Juice concentrates which cools poured into a mold bamboo. Sugar that has been removed from the mold wait until cool and then packaged.

3. The parameters observed

The parameters observed in this study is the physical and chemical properties of sugar palm print that moisture, reducing sugar content, ash content and texture.

4. Data analysis

Data physical and chemical properties of coconut sugar were analyzed by analysis of variance (F test) and if the results of the analysis provide a real impact, the data were analyzed further by Duncan's Multiple Range Test at 5% level.

RESULTS AND DISCUSSION

1. Blood Sugar Reductions

The average value of the print palm sugar reduced sugar obtained from treatment of the proportion of powder mixture of betel leaf stems and green (S) is presented in Figure 1.

Increasing the proportion of green betel from S1 to S3 treatment tends to increase the sugar reduction sugar palm print. Powdered green betel has a pH value of 5, the higher the added powdered green betel be expected to lower the pH of coconut sap that can be the inverse of sucrose to reducing sugars. The interaction between the powder and powdered lime green betel towards reducing sugar palm sugar prints presented in Figure 2.

Figure 2 shows the increase in green betel powder and a different amount of additional preservatives produces reducing sugar is high. The maximum levels of sugar reduced sugar palm print by SNI 01-3743- 1995 is 10% mm. A low reducing sugar contained in the treatment S4P2 and S1P1, S4P2 treatment but the application into the tube too much, and the proportion of green betel so high that the best recommended treatment is the treatment of S1P1 as the proportion of green betel powder and the addition of preservatives into the little tube was able to produce sugar palm print with the same reducing sugar with S4P2 treatment.

2. Water content

Kadar air gula kelapa cetak menurut SNI-01-3743-1995 adalah 10% bb. Nilai rata-rata kadar air gula kelapa cetak yang diperoleh dari perlakuan jumlah penambahan pengawet alami 1 g/L nira kelapa (P1) dan 2 g/L nira kelapa (P2) disajikan pada Gambar 3.

Gambar 4 menunjukkan bahwa jumlah penambahan pengawet alami kedalam bumbung sebanyak 1 dan 2 g/L nira kelapa tidak menghasilkan kadar air gula kelapa cetak yang jauh berbeda. Kadar air gula kelapa cetak dengan pengawet sirih hijau hampir semua memenuhi batas SNI.

3. Tekstur

Nilai rata-rata tekstur gula kelapa cetak yang diperoleh dari perlakuan proporsi bubuk campuran batang dan daun sirih hijau disajikan pada Gambar 5.

Gambar 1. Gula reduksi gula kelapa cetak pada perlakuan proporsi bubuk campuran batang dan daun sirih hijau : bubuk kapur (%b/b) (S)

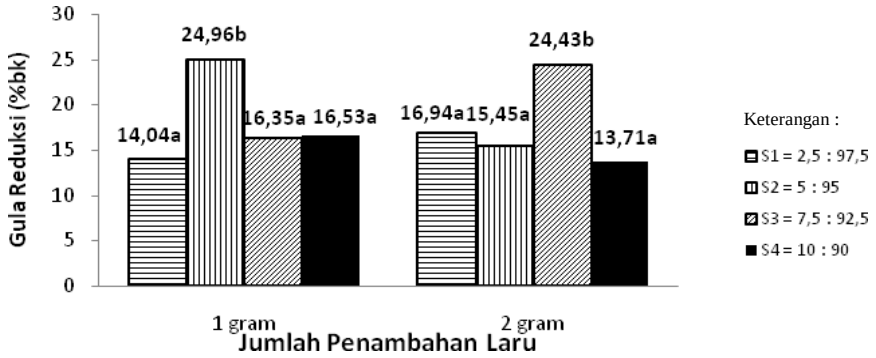

Figure 2. The value of reduction sugar with powdered green betel proportions treatment: lime powder (% w / w)
(S) and the amount of additional natural preservative (P)

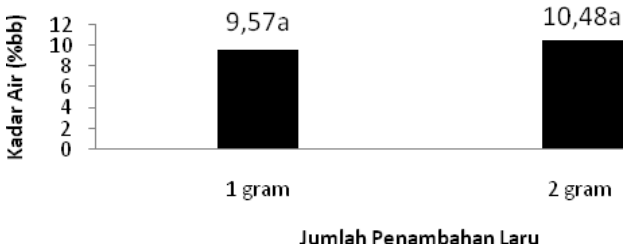

Figure 3. Value of coconut sugar water content printed on the variation amount of additional natural preservative mixture of betel leaf stems and green.

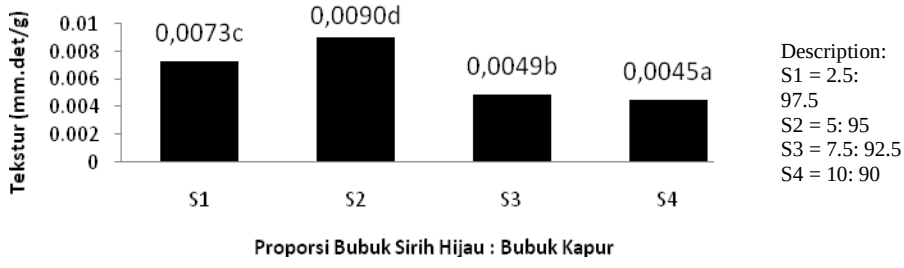

Figure 4. The texture of the print palm sugar in treatment the proportion of green betel powder: powdered lime

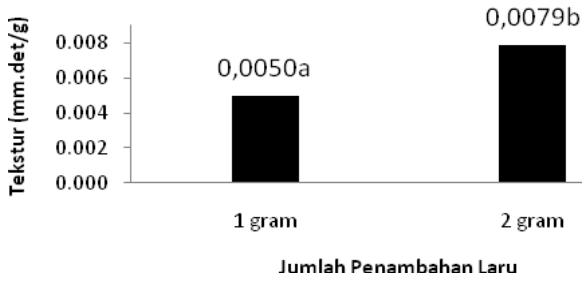

Figure 5. The value of sugar texture palm print on the variation of the number of additional natural preservative mixture of betel leaf stems and green.

Differences in the proportion of green betel produce texture or hardness which is different for each treatment. The higher the value indicated by the instrument, then the level of violence decreased print palm sugar or soft. Treatment S1 and S2 has a level of violence decreased, while S3 and S4 have an increased level of violence or louder. Treatment S3 and S4 have a hard texture allegedly due to the treatment S3 and S4 have a high proportion of green betel and able to prevent inversion of sucrose so that the reducing sugars into low and causes printed coconut sugar to have a hard texture. In addition to the treatment of green betel proxy, the addition of preservatives into the bumbung also affects the texture of the printed coconut sugar. The average value of the texture of printed coconut sugar obtained from the treatment of the addition of natural preservative 1 g / L coconut sap (P1) and 2 g / L coconut sap (P2) is presented in Figure 5.

Figure 5 shows that the addition of preservatives as much as 2 g / L of palm juice has a softer texture compared with the addition of 1 g/L of sap coconut. The mushy sugar texture green betel palm print preservatives by administering into the tube as much as 2 g / L allegedly because too much addition of preservatives which are mostly lime and sugar can lead to more hygroscopic. Sugar palm print only using lime alone preservative more hygroscopic. Differences print palm sugar texture value is also influenced by the interaction between the proportion of green betel powder and the number of additions into the tube. The average value of the levels of sugar texture palm print obtained from each treatment are presented in Figure 6.

Figure 6 shows the addition of preservatives added to each tube produces print palm sugar that has a mushy texture, but the higher the proportion of green betel palm sugar produces prints that have increasing levels of violence. Increasing the proportion of green betel powder allegedly able to prevent inversion of sucrose so that the reducing sugar is low and the impact on the texture of sugar grew louder.

4. Ash Content

The average value of ash content of the print palm sugar derived from a natural preservative treatment additional amount of 1 g / L coconut sap (P1) and 2 g / L coconut sap (P2) is presented in Figure 7.

Figure 7 shows that the addition of preservatives as much as 1 and 2 g / L coconut sap does not have ash levels much different, but the addition of preservatives 2 g / L coconut sap produce sugar palm print with ash content tends to be higher than 1 g / L coconut sap , High levels of

ash in the print palm sugar is affected by lime powder is added, the more lime is added, then the higher ash content. According to SNI 01- 3743-1995 print palm sugar ash content is 2% bb. Sugar green betel palm natural preservatives have a higher ash content than the SNI. High levels of ash in the print palm sugar green betel natural preservative may be caused by the use of powder and powdered lime green betel preservatives that are not perfect in the juice so that it can increase the ash content of the print palm sugar. Filtering imperfect coconut sap can also increase the ash content of the print palm sugar, because of impurities in the filtered juice is not perfect. According Kusnandar (2010), adding more lime in the coconut sap sugar can increase the ash content of palm prints.

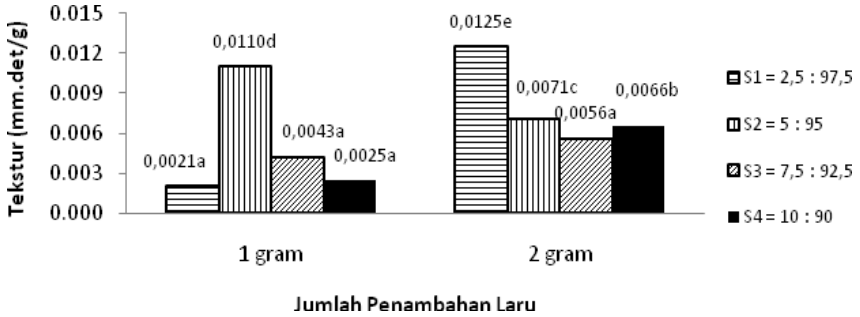

Figure 6. Texture value of printed coconut sugar by treatment of the proportion of powdered mixture of green betel leaf and betel leaf: lime powder (% b / b) (S) and the amount of addition of natural preservative (P)

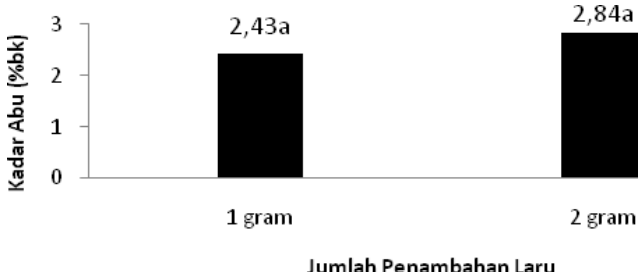

Figure 7. The value of the print content of coconut sugar on the variation in the number of additions to natural preservatives mixed with green betel leaves and betel leaves.

CONCLUSION

Printed coconut sugar that has physical and chemical properties that meet SNI-01-3743-1995 is produced from natural preservatives with the proportion of green betel powder: lime powder (% b / b) 2.5: 97.5 with the use of 1 g / L coconut juice. The combination of this treatment produces coconut sugar which has a reduced sugar content of 12.72% bb; water content 9.45% bb; texture 0,0021 mm.det / g; and ash content of 2.46% bk (2.23% bw).

ACKNOWLEDGEMENT

Thank you to UNSOED for providing research funding through the 2011 RISIN Grant Program.

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