

RINGKASAN

Nira kelapa mudah mengalami kerusakan yang diakibatkan oleh aktivitas mikroba. Hal ini dapat dikendalikan dengan penambahan bahan pengawet nira yang dikenal dengan istilah laru. Bahan yang digunakan pada penelitian ini adalah larutan kapur 60%, ekstrak kulit kayu sampang (*Melicope lunu-ankenda*), ekstrak kayu mahoni (*Swietenia mahagoni*), dan ekstrak kayu nangka (*Artocarpus heterophyllus*). Penelitian ini bertujuan untuk: 1) Mengetahui pengaruh formula laru alami cair ekstrak tiga jenis kayu terhadap aktivitas antimikroba dan karakteristik mutu gula kelapa; 2) Mengetahui pengaruh konsentrasi laru alami cair ekstrak tiga jenis kayu terhadap aktivitas antimikroba dan karakteristik mutu gula kelapa; 3) Menentukan kombinasi perlakuan antara formula dan konsentrasi laru alami cair ekstrak tiga jenis kayu yang memiliki aktivitas antimikroba dan menghasilkan gula kelapa dengan karakteristik mutu terbaik.

Penelitian dilakukan dalam dua tahap, yang pertama adalah tahap *screening* terhadap aktivitas antimikroba delapan formula laru alami dan empat konsentrasi laru alami dengan metode Rancangan Acak Lengkap (RAL). Berdasarkan hasil pengujian aktivitas antimikroba pada tahap pertama dipilih empat formula laru alami dan dua konsentrasi laru alami yaitu formula ekstrak kulit kayu sampang : ekstrak kayu mahoni : larutan kapur (10:10:80), ekstrak kulit kayu sampang : ekstrak kayu nangka : larutan kapur (10:10:80), ekstrak kayu mahoni : ekstrak kayu nangka : larutan kapur (10:10:80), dan ekstrak kulit kayu sampang : ekstrak kayu mahoni : ekstrak kayu nangka : larutan kapur (10:10:10:70) ; dan konsentrasi (K) 10% dan 20% sebagai formula dan konsentrasi terpilih yang akan diujikan pada tahap kedua dengan metode Rancangan Acak Kelompok (RAK). Perlakuan disusun secara faktorial dengan delapan kombinasi perlakuan dan tiga kali ulangan. Variabel yang diamati meliputi: 1) variabel kimia (kadar air, kadar abu, dan kadar gula reduksi); 2) variabel sensori (warna, tekstur, aroma, tingkat kemanisan, dan tingkat kesukaan). Data kimia dianalisis dengan uji F dan apabila berpengaruh nyata dilanjutkan dengan uji DMRT taraf 5%. Data sensori dianalisis dengan uji *Friedman* dan apabila berpengaruh nyata dilanjutkan dengan uji banding ganda taraf 5%.

Hasil penelitian menunjukkan bahwa kombinasi perlakuan formula laru alami ekstrak kayu mahoni : kayu nangka : larutan kapur (10:10:80) pada konsentrasi 20% menghasilkan karakteristik gula kelapa cetak lebih baik dibanding gula kelapa hasil kombinasi lainnya yaitu menghasilkan warna cokelat (skor 2,75), tekstur keras (skor 3,45), aroma gula kelapa khas (skor 2,66), tingkat kemanisan yaitu manis (skor 3,01) dan tingkat kesukaan yaitu suka (skor 2,75) dan karakteristik kimia gula kelapa yaitu kadar air 10,14 %bb, kadar abu 1,29 %bk, dan kadar gula reduksi 8,09 %bk.

SUMMARY

Coconut sap can be easily damaged caused by microbial activity. It can be controlled by addition of preservatives coconut sap known as laru. Materials used in this research are using lime solution 60%, liquid extracts of “Sampang wood bark” (*Melicope lunu-ankenda*), “Mahogany wood” (*Swietenia mahagoni*), “Jackfruit wood” (*Artocarpus heterophyllus*). The purpose of this research were: 1) To determine the effect of liquid natural laru formula from the three kinds of wood extracts on antimicrobial activity and quality characteristics of coconut sugar produced; 2) To determine the effect of liquid natural laru concentration from the three kinds of wood extracts on antimicrobial activity and the quality characteristics of coconut sugar; 3) To determine the best combination of treatment between formula and concentration of liquid natural laru from the three kinds of wood extracts which has the best antimicrobial activity and the quality characteristic coconut sugar.

This research have conducted in two steps. The first was screening on antimicrobial activity of eight natural laru formulas and four natural laru concentrations using Randomized Complete Design (RCD). Based on the results of testing antimicrobial activity in the first step obtained four natural laru formulas and two natural concentration formulas. The formulas were “Sampang wood bark” extract : “Mahogany wood” extract : lime solution (10:10:80), “Sampang wood bark” extract : “Jackfruit wood” extract : lime solution (10:10:80), “Mahogany wood” extract : “Jackfruit wood” extract : lime solution (10:10:80), “Sampang wood bark” extract : “Mahogany wood” extract : “Jackfruit wood” extract : lime solution (10:10:10:80) and the concentrations : 10% and 20%. The chosen formulas and concentrations were tested using Randomized Complete Block Design (RCBD). This research arranged as factorial with nine treatment combinations and repeated three times. The variables observed consist of: 1) chemical variables (moisture content, ash content, reduce sugar content); 2) sensori variables (color, texture, smell, sweetness, and the level of preferences). Chemical data were analyzed using *F* test and if the result is significantly different, then tested using DMRT at 5% level. Sensory data were analyzed using the Friedman test and if the result is significantly different, then tested using multiple comparison test at 5% level.

Result of the research showed that the natural laru formula treatment combination of “Mahogany wood” extract : “Jackfruit wood” extract : lime solution (10:10:80) at 20% concentration produced palm sugar characteristics better than the other treatments. It had brown color (score of 2.75), hard texture (score of 3.45), typical smell of coconut sugar (score of 2.66), the level of sweetness is sweet (score of 3.01), the level of preferences is like (score of 2.75), moisture content is 10.14% wb, ash content is 1.29% db, and reduce sugar content is 8,09% db.