

RINGKASAN

Pati dapat digunakan sebagai *biodegradable film* karena pati termasuk kelompok hidrokoloid, bahan yang mudah didapat, harganya murah, serta jenisnya beragam di Indonesia. Pada penelitian ini menggunakan bahan baku pati ganyong dan pati kimpul. Kelompok hidrokoloid yang dapat digunakan sebagai bahan baku *biodegradable film* selain pati adalah karagenan. Karagenan adalah kelompok hidrokoloid yang potensial untuk dibuat *biodegradable film* karena sifatnya yang dapat membentuk gel, stabil serta bisa dimakan. Penelitian ini bertujuan untuk: 1) Mengetahui pengaruh jenis bahan terhadap karakteristik fisik, kimia, sensori *biodegradable film*; 2) Mengetahui pengaruh jenis *plasticizer* terhadap karakteristik fisik, kimia, sensori *biodegradable film*; 3) Mengetahui pengaruh konsentrasi *plasticizer* terhadap karakteristik fisik, kimia, sensori *biodegradable film*; 4) Mengetahui interaksi perlakuan bahan baku *biodegradable film*, jenis *plasticizer* dan konsentrasi *plasticizer* sehingga mendapat perlakuan *biodegradable film* terpilih.

Penelitian ini dilaksanakan di Laboratorium Pengolahan Pangan Fakultas Pertanian, Universitas Jenderal Soedirman selama 4 bulan mulai bulan Oktober 2018 sampai Februari 2019. Penelitian ini menggunakan metode Rancangan Acak Lengkap (RAL) dengan tiga faktor yang dicoba yaitu jenis bahan dasar *biodegradable film* terdiri atas P1= pati ganyong; P2= pati kimpul; P3= karagenan, dan jenis *plasticizer* yang terdiri atas Q1= gliserol dan Q2= sorbitol serta konsentrasi *plasticizer* terdiri atas R1= 2%; R2= 4%; R3= 6%. Variabel yang diamati pada penelitian ini yaitu kadar air, kadar abu, kelarutan, ketebalan, dan sensori.

Hasil penelitian menunjukkan bahwa (1) *biodegradable film* karagenan memiliki nilai kelarutan dan kadar air tertinggi diikuti dengan *biodegradable film* pati kimpul dan pati ganyong. *Biodegradable film* pati kimpul memiliki nilai ketebalan tertinggi diikuti *biodegradable film* pati ganyong dan karagenan. (2) *plasticizer* sorbitol menghasilkan *biodegradable film* dengan nilai ketebalan lebih tinggi dibandingkan *plasticizer* gliserol. *Plasticizer* gliserol menghasilkan *biodegradable film* dengan nilai kadar air lebih tinggi dibandingkan *plasticizer* sorbitol. (3) konsentrasi *plasticizer* 6% memiliki nilai ketebalan tertinggi diikuti dengan konsentrasi *plasticizer* 2% dan 4%. (4) Perlakuan terpilih yaitu P1Q2R2 (pati ganyong dengan *plasticizer* sorbitol 4%) dengan karakteristik fisik, kimia dan sensori sebagai berikut: kadar air (6,6%), kadar abu (0,5%), kelarutan (49%), ketebalan (0,254 mm), warna (putih), kejernihan (sedikit transparan), aroma (tidak menyengat), tekstur (agak halus), kesukaan (suka).

SUMMARY

Starch can be used as a biodegradable film because starch is a hydrocolloid group, a material that is easy to obtain, inexpensive, and of various types in Indonesia. In this study using raw materials of ganyong starch and kimpul starch. The hydrocolloid group that can be used as a biodegradable film raw material other than starch is carrageenan. Carrageenan is a hydrocolloid group that has the potential to make biodegradable films because of its gel-forming properties, stable and edible. The purpose of this research is to know: 1) The effect of the type material on the physical, chemical, sensory characteristics of biodegradable films; 2) The effect of the type of plasticizer on the physical, chemical, sensory characteristics of biodegradable films; 3) The effect of the concentration of plasticizers on the physical, chemical, sensory characteristics of biodegradable films; 4) The interaction of biodegradable film raw material treatment, type of plasticizer and concentration of plasticizer so that the selected biodegradable film is treated.

This research was conducted at the Agriculture Technology Laboratory of the Faculty of Agriculture, Jenderal Sudirman University for 4 months starting from October 2018 until February 2019. This study used a Completely Randomized Design (CRD) method with three factors, namely biodegradable base material consisting of P1 = starch Canna; P2 = kimpul starch; P3 = carrageenan, and the type of plasticizer consisting of Q1 = glycerol and Q2 = sorbitol and the concentration of plasticizer consists of R1 = 2%; R2 = 4%; R3 = 6%. The variables observed in this study were water content, ash content, solubility, thickness, and sensory.

The results showed that (1) Biodegradable films carrageenan had the highest solubility and water content values followed by biodegradable film kimpul starch and ganyong starch. Biodegradable films kimpul starch have the highest thickness values followed by biodegradable films canna starch and carrageenan. (2) Sorbitol plasticizers produce biodegradable films with higher thickness values than glycerol plasticizers. Glycerol plasticizer produces biodegradable films with higher water content than sorbitol plasticizers. (3) The concentration of 6% plasticizer has the highest thickness value followed by a plasticizer concentration of 2% and 4%. (4) The chosen treatment is P1Q2R2 (ganyong starch with 4% sorbitol plasticizer) with physical, chemical and sensory characteristics as follows: water content (6.6%), ash content (0.5%), solubility (49%), thickness (0.254 mm), color (white), clarity (slightly transparent), aroma (not stinging), texture (rather smooth), likes (likes).

