

**PENGARUH VARIASI PENAMBAHAN NATRIUM
MONOKLOROASETAT TERHADAP KARAKTERISTIK CMC
(*CARBOXYMETHYL CELLULOSE*) DARI *NATA DE COCO***

MITA NASUTION

2011122005



**DEPARTEMEN TEKNOLOGI PANGAN DAN HASIL PERTANIAN
FAKULTAS TEKNOLOGI PERTANIAN
UNIVERSITAS ANDALAS
PADANG
2024**

Pengaruh Variasi Penambahan Natrium Monokloroasetat Terhadap Karakteristik CMC (*Carboxymethyl Cellulose*) Dari *Nata De Coco*

Mita Nasution¹, Purnama Dini Hari², Novelina²

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh variasi penambahan natrium monokloroasetat terhadap karakteristik CMC *nata de coco*, mengetahui penambahan natrium monokloroasetat terbaik dan mengetahui karakteristik fisik dan kimia dari CMC *nata de coco* yang dihasilkan. Penelitian ini dirancang berdasarkan rancangan acak lengkap (RAL) berupa variasi penambahan natrium monokloroasetat (6, 7, 8, 9, dan 10 gram). Pembuatan CMC *nata de coco* dilakukan dengan proses alkalisasi dengan NaOH 15% kemudian dilanjutkan dengan tahapan karboksimetilasi dengan variasi penambahan natrium monokloroasetat. Hasil penelitian menunjukkan bahwa variasi penambahan natrium monokloroasetat memberikan pengaruh nyata terhadap karakteristik CMC *nata de coco* pada taraf 5% berupa nilai derajat substitusi, kadar NaCl, kemurnian CMC, viskositas CMC dan nilai pH, serta tidak berpengaruh nyata terhadap kadar air. Perlakuan terbaik pada penelitian ini adalah perlakuan D (NMA 9 gram) dengan kadar air (3,73%), nilai derajat substitusi (0,70), kadar NaCl (1,35%), kemurnian CMC (96,80%), viskositas CMC (31,20 cPs), dan nilai pH (6,92). Identifikasi gugus fungsi CMC *nata de coco* dilakukan pada perlakuan terbaik menggunakan analisis FTIR. Hasil analisis FTIR menunjukkan adanya terdeteksi gugus karboksimetil pada puncak $1593,26\text{ cm}^{-1}$ ($-\text{COO}^-$ antisimetris), $1427,86\text{ cm}^{-1}$ ($-\text{COONa}$), dan $1417,70\text{ cm}^{-1}$ ($-\text{CH}_2$ *bending* atau $-\text{COO}^-$ simetris) yang menandakan terbentuknya molekul CMC.

Kata kunci : CMC, *nata de coco*, alkalisasi, karboksimetilasi

The Effect of Variations Addition Sodium Monochloroacetate on the Characteristics of CMC (Carboxymethyl Cellulose) from Nata De Coco.

Mita Nasution¹, Purnama Dini Hari², Novelina²

ABSTRACT

This research aims to determine the effect of variations adding of sodium monochloroacetate on the characteristics of CMC nata de coco, identify the optimal amount of sodium monochloroacetate addition, and analyze the physical and chemical properties of the resulting CMC nata de coco. The research was designed based on a completely randomized design (CRD) with variations in sodium monochloroacetate addition (6, 7, 8, 9, and 10 grams). The preparation of CMC nata de coco was carried out with an alkalization process with 15% NaOH and continued with the carboxymethylation process with variations in the addition of sodium monochloroacetate. The results showed that the variation of sodium monochloroacetate addition significant effect on the characteristics of CMC nata de coco at the 5% level in the form of the degree of substitution value, NaCl content, CMC purity, CMC viscosity, and pH value, and had no significant effect on moisture content. The best treatment in this study was treatment D (9 grams of sodium monochloroacetate), with moisture content (3.73%), degree of substitution (0.70), NaCl content (1.35%), CMC purity (96.80%), CMC viscosity (31.20 cPs), and pH value (6.92). Functional group identification of CMC nata de coco was performed on the best treatment with FTIR analysis. The results of FTIR analysis showed the detection of carboxymethyl group at peaks of 1593.26 cm^{-1} (-COO-antisymmetric), 1427.86 cm^{-1} (-COONa), and 1417.70 cm^{-1} (-CH₂ bending or -COO-symmetric), which indicates the formation of CMC molecules.

Keywords: CMC, nata de coco, alkalization, carboxymethylation