

IDENTIFIKASI DAN PENETAPAN KADAR NATRIUM BENZOAT PADA MINUMAN KEMASAN NATA DE COCO DENGAN METODE SPEKTROFOTOMETRI UV

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ABSTRAK

Natrium benzoate adalah pengawet organik yang diperbolehkan penggunaannya di Indonesia. Natrium benzoate Tujuan dari penelitian ini adalah untuk menemukan analit dalam sampel dan mengetahui jumlah analit dalam sampel. Produk memiliki batas penggunaan harian maksimum 400 mg/kg dan ADI (*Acceptable Daily Intake*) adalah 0-5 mg/kgBB. Penelitian ini dimulai dengan uji kualitatif kadar natrium benzoate dalam sampel dengan reaksi pengendapan FeCl_3 . Untuk mengetahui ketepatan metode uji spektrofotometri UV dalam menentukan kadar natrium benzoate dalam sampel, diperlukan validasi metode. Panjang gelombang dari 200-400 nm dioptimalkan. Validasi metode yaitu uji selektivitas, linieritas, BD, BK, akurasi, dan presisi. Serta yang terakhir penetapan kadar natrium benzoate dalam sampel. Hasil uji kualitatif menunjukkan adanya endapan yang menandakan sampel positif mengandung natrium benzoate. Didapatkan panjang gelombang maksimum pada 260 nm. Uji linieritas didapatkan nilai koefisien korelasi (R^2) sebesar 0,9988 yang menandakan linieritas, dengan nilai BD sebesar 1,0903 ppm, dan BK sebesar 3,6343 ppm. Akurasi didapatkan %recovery sebesar 90%, 98%, dan 91% yang masuk rentang 80%-120%. Presisi didapatkan %RSD sebesar 0,1846%, 0,1680%, dan 0,1414% syarat $\leq 2\%$. Hasil penetapan kadar dalam sampel A 6,9169 mg/kg, sampel B 6,7964 mg/kg, dan sampel C 6,8943 mg/kg. Dimana sampel masih aman untuk dikonsumsi karena kadar masih dibawah batas yang diizinkan oleh BPOM.

***Kata Kunci:** Natrium Benzoate, Penetapan kadar, Spektrofotometri UV

**IDENTIFICATION AND DETERMINATION OF SODIUM BENZOATE
LEVELS IN NATA DE COCO PACKAGED BEVERAGES BY UV
SPECTROPHOTOMETRY METHOD**

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ABSTRACT

Sodium benzoate is an organic preservative that is allowed to be used in Indonesia. Sodium benzoate has a maximum usage limit of 400 mg/kg per day in the product and also an ADI (Acceptable Daily Intake) limit of 0-5 mg/kgBB. This study aims to identify the analytes in the sample and determine the number of analyte levels in the sample. Method validation must be carried out to determine the accuracy of the UV spectrophotometry test method in determining the level of sodium benzoate in the sample. This research began with a qualitative test of sodium benzoate in samples with a FeCl_3 precipitation reaction. Wavelength optimization is carried out in the range of 200-400 nm. Method validation is a test of selectivity, linearity, BD, BK, accuracy, and precision. And the last determination of sodium benzoate levels in the samples. The results of the qualitative test showed the presence of deposits indicating that the sample was positive for sodium benzoate. The maximum wavelength is obtained at 260 nm. The linearity test obtained a correlation coefficient (R^2) value of 0.9988 which indicates linearity, with a BD value of 1.0903 ppm, and a BK of 3.6343 ppm. The accuracy was obtained % recovery of 90%, 98%, and 91% which was in the range of 80%-120%. Precision was obtained %RSD of 0.1846%, 0.1680%, and 0.1414% of the condition $\leq 2\%$. The results of the determination of the level in sample A were 6.9169 mg/kg, sample B 6.7964 mg/kg, and sample C 6.8943 mg/kg. Where the sample is still safe to consume because the level is still below the limit allowed by BPOM.

*Keywords: Sodium Benzoate, Rate Determination, UV Spektrophotometry