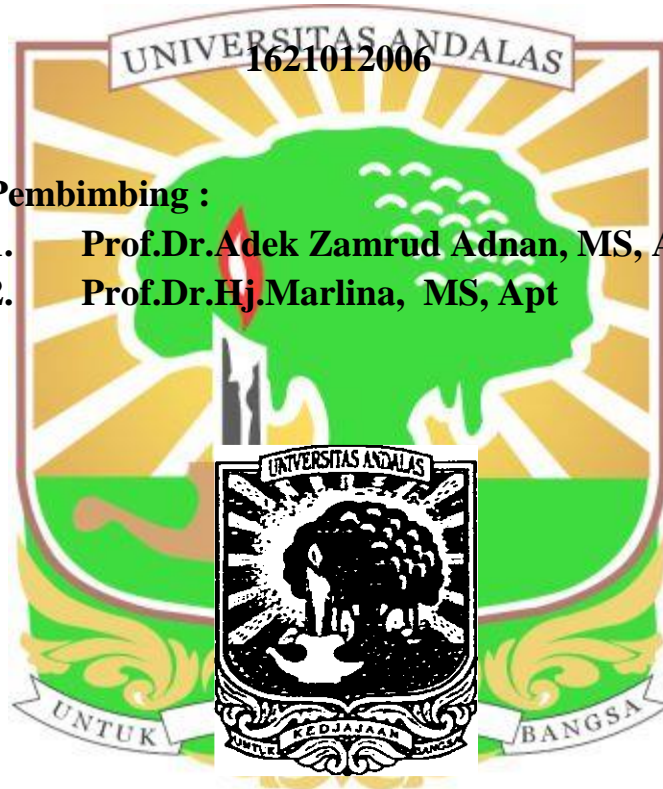


**PENENTUAN KAPASITAS ADSORPSI DAN DESORPSI
AGAROSA TERHADAP ZAT WARNA TARTRAZIN DENGAN
METODE SPEKTROFOTOMETRI SINAR TAMPAK**

Tesis

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Penentuan Kapasitas Adsorpsi Dan Desorpsi Agarosa Terhadap Zat Warna Tartrazin Dengan Metode Spektrofotometri Sinar Tampak

ABSTRAK

Penelitian ini bertujuan untuk mengetahui apakah agarosa dapat digunakan sebagai adsorben pada analisis zat warna tartrazin. Penentuan kapasitas adsorpsi dan desorpsi agarosa terhadap zat warna tartrazin menggunakan metode spektrofotometri sinar tampak. Percobaan dilakukan menggunakan 0,25 g agarosa hasil isolasi dalam 25 ml larutan uji dengan variasi pH, waktu kontak dan konsentrasi larutan tartrazin. Adsorpsi dan desorpsi zat warna tartrazin oleh agarosa hasil isolasi dikuantifikasi pada panjang gelombang 427 nm. Dari konsentrasi larutan standar tartrazin 6 µg/ml sampai 18 µg/ml diperoleh persamaan regresi $y = 0,040x + 0,004$ and koefisien korelasi (r) 0,999. Hasil penelitian menunjukkan bahwa proses adsorpsi optimal pada suasana asam dan waktu kontak 60 menit, sedangkan proses desorpsi optimal pada suasana basa dan waktu kontak 60 menit. Kapasitas adsorpsi maksimum 0,1108 mg/g dan kapasitas desorpsi maksimum 0,1083 mg/g pada larutan standar tartrazin dengan konsentrasi 5,6 µg/ml. Jika nilai kapasitas desorpsi maksimum dibandingkan dengan nilai kapasitas adsorpsi maksimum maka akan memberikan persentase yang tinggi, yaitu 97,74%. Dapat disimpulkan bahwa agarosa dapat digunakan dan dikembangkan sebagai adsorben dalam analisis tartrazin.

Kata Kunci : Agar, Agarosa, Kapasitas adsorpsi, Tartrazin, Spektrofotometri



Determination of Adsorption and Desorption Capacity of Agarose Against Tartrazine by Visible Ray Spectrophotometry Method

ABSTRACT

This study aims to determine whether agarose can be used as an adsorbent in the analysis of tartrazine dyes. Determination of adsorption capacity and desorption of agarose against tartrazine dyes using visible light spectrophotometry method. The experiment was carried out using 0.25 g agarose as a result of isolation in 25 ml of the test solution with variations in pH, contact time and concentration of tartrazine solution. The adsorption and desorption of tartrazine dyes by isolate agarose was quantified at a wavelength of 427 nm. From the concentration of standard tartrazine solution 6 µg/ml up to 18 µg/ml the regression equation was obtained $y = 0.040x + 0.004$ and the correlation coefficient (r) was 0.999. The results showed that the adsorption process was optimal at acidic atmosphere and 60 minutes contact time, while the desorption process was optimal at alkaline atmosphere and 60 minutes contact time. The maximum adsorption capacity is 0.1108 mg/g and the desorption capacity is maximum 0.1083 mg/g in tartrazine solution with a concentration of 5.6 µg/ml. If the maximum desorption capacity value is compared with the maximum adsorption capacity value it will give a high percentage, which is 97.74%. It can be concluded that agarose can be used and developed as an adsorbent in tartrazine analysis.

Keywords: Agar, Agarose, Adsorption capacity, Tartrazine, Spectrophotometry

