

ABSTRAK

YUNI KHARISMA, (2025), ANALISIS KADAR SAKARIN DAN SIKLAMAT PADA LARUTAN GULA ES CAMPUR DAN ES CINCAU DI DESA PLESUNGAN, GONDANGREJO, KARANGANYAR, KARYA TULIS ILMIAH, PROGRAM STUDI D-III ANALIS FARMASI DAN MAKANAN, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI. Dibimbing oleh: apt. Endang Sri Rejeki, S.Si., M.Si

Sakarin dan siklamat merupakan pemanis buatan yang umum digunakan dalam pangan karena memiliki kemanisan tinggi, larut dalam air, dan stabil terhadap panas. Sakarin memiliki tingkat kemanisan 200–700 kali lipat dibanding sukrosa, sedangkan siklamat sekitar 30 kali. Konsumsi sakarin dan siklamat secara berlebih dapat menimbulkan efek samping seperti gangguan ginjal, hipertensi, hingga kanker. BPOM membatasi penggunaannya sebesar 300 mg/kg untuk sakarin dan 500 mg/kg untuk natrium siklamat. Penelitian ini dilakukan untuk mengetahui kandungan dan kadar sakarin serta siklamat pada larutan manis es cincau dan es campur yang dijual di Desa Plesungan, Kecamatan Gondangrejo, Karanganyar.

Sampel berupa larutan gula dari dua es campur dan satu es cincau. Uji kualitatif sakarin dilakukan dengan reaksi warna dan KLT. Uji kualitatif siklamat dilakukan menggunakan metode pengendapan dan spektrofotometri UV-Vis berdasarkan panjang gelombang maksimum. Analisis kuantitatif kadar siklamat dilakukan dengan titrasi nitrimetri menggunakan larutan natrium nitrit 0,1 M.

Hasil menunjukkan seluruh sampel negatif sakarin, namun satu sampel positif mengandung siklamat. Hasil uji kualitatif spektrofotometri menunjukkan panjang gelombang maksimum sebesar 314 nm, sesuai dengan karakteristik siklamat. Kadar siklamat yang ditemukan mencapai rata-rata 7.312,38 mg/kg, jauh melebihi batas maksimum. Hal ini menunjukkan potensi risiko kesehatan akibat penggunaan siklamat yang berlebihan pada salah satu sampel.

Kata kunci: sakarin, siklamat, pemanis buatan, titrasi nitrimetri, spektrofotometri UV-Vis, es campur, es cincau.

ABSTRACT

YUNI KHARISMA. (2025). QUANTITATIVE ANALYSIS OF SACCHARIN AND CYCLAMATE IN SUGAR-BASED BEVERAGES (ES CAMPUR AND ES CINCAU) IN PLESUNGAN VILLAGE, GONDANGREJO SUBDISTRICT, KARANGANYAR REGENCY. SCIENTIFIC WRITING. DIPLOMA PROGRAM IN PHARMACEUTICAL AND FOOD ANALYSIS, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY. ADVISOR: APT. ENDANG SRI REJEKI, S.SI., M.SI.

Saccharin and cyclamate were artificial sweeteners commonly used in food products due to their high sweetness levels, water solubility, and heat stability. Saccharin had a sweetness intensity of 200–700 times that of sucrose, while cyclamate was about 30 times sweeter. Excessive consumption of saccharin and cyclamate could cause side effects such as kidney disorders, hypertension, and even cancer. The Indonesian Food and Drug Authority (BPOM) set maximum limits of 300 mg/kg for saccharin and 500 mg/kg for sodium cyclamate.

The samples consisted of sugar solution from two *es campur* and one *es cincau*. Qualitative analysis of saccharin was conducted using color reaction and thin-layer chromatography (TLC). Cyclamate was qualitatively tested using precipitation method and UV-Vis spectrophotometry based on maximum wavelength. Quantitative analysis of cyclamate content was carried out using nitritimetric titration with 0.1 M sodium nitrite solution.

The results showed that all samples were negative for saccharin, while one sample was positive for cyclamate. The qualitative spectrophotometric test showed a maximum wavelength of 314 nm, consistent with the characteristic of cyclamate. The detected cyclamate level averaged 7,312.38 mg/kg, which significantly exceeded the maximum limit. This finding indicated a potential health risk due to the excessive use of cyclamate in one of the samples.

Keywords: saccharin, cyclamate, artificial sweetener, nitritimetric titration, UV-Vis spectrophotometry, mixed ice dessert, grass jelly dessert.