

**PENGEMBANGAN METODE ANALISIS SURFAKTAN ANIONIK
NATRIUM DODESIL BENZENA SULFONAT (SDBS) DALAM
IKAN AIR TAWAR SECARA SPEKTROFOTOMETRI UV-Vis
MENGGUNAKAN ACRIDINE ORANGE**

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INTISARI

Pengembangan metode analisis surfaktan anionik natrium dodesil benzena sulfonat (SDBS) secara spektrofotometri UV-Vis menggunakan *acridine orange* (AO) dalam ikan telah dilakukan. Penelitian ini bertujuan untuk menentukan kondisi optimum analisis SDBS, interferensi protein dan ion lain, parameter validasi, hubungan konsentrasi SDBS di dalam kolam dan akumulasi SDBS dalam ikan lele serta analisis SDBS pada ikan yang dijual di pasaran. Penelitian ini dibagi dua tahap, yaitu isolasi SDBS dalam tubuh ikan dengan ekstraksi Soxhlet dan analisis SDBS. Analisis SDBS didasarkan pada pembentukan pasangan ion antara DBS dan AO.

Hasil penelitian menunjukkan bahwa panjang gelombang serapan maksimum pasangan ion DBS-AO 499 nm, AO larut dalam etanol, perbandingan mol DBS AO 2:1, dan pH optimum 2,97. Interferensi berasal dari protein, ion Ca^{2+} dan Mg^{2+} . Validasi metode menunjukkan nilai linearitas (R^2) 0,997, batas deteksi 0,0343 mg/L, batas kuantifikasi 0,104 mg/L, presisi 0,382-1,78 %, sensitifitas $4,64 \times 10^4 \text{ L mol}^{-1} \text{ cm}^{-1}$ dan akurasi 82,11-100,3%. Kandungan SDBS dalam ikan meningkat seiring dengan meningkatnya konsentrasi SDBS di dalam air. Konsentrasi SDBS dalam ikan lele pasar antara 0,0012-0,0029 mg/g, ikan nila merah sebesar 0,0038-0,0077 mg/g dan ikan gurame sebesar 0,0008-0,0026 mg/g.

Kata kunci: Validasi, SDBS, *acridine orange*, ikan

***ANALYTICAL METHOD DEVELOPMENT OF ANIONIC SURFACTANT
SODIUM DODECYL BENZENE SULFONATE (SDBS) IN FRESH
WATER FISH BY UV-Vis SPECTROPHOTOMETRY
USING ACRIDINE ORANGE***

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ABSTRACT

Analytical method development of anionic surfactant sodium dodecyl benzene sulfonate (SDBS) in fresh water fish by UV-Vis spectrophotometry using acridine orange has been conducted. The aims of this research are to determine the optimum conditions of analysis, the effect of protein and coexisting ion in analysis, the validation parameters, the effect of SDBS concentration in the pond on SDBS accumulation in catfish, and the concentration of SDBS in fish from local markets. This study was divided into two steps, isolation of SDBS in the fish with Soxhlet extraction and analysis of SDBS. The analysis of SDBS is based on the formation of ion pair between DBS and AO.

The results showed that the analysis can be performed at 499 nm, using ethanol as AO solvent, mole ratio of DBS AO 2:1, and pH 2.97. Interference came from protein, Ca^{2+} and Mg^{2+} . The parameters of validation method have good acceptability as linearity (R^2) of 0.997, limit of detection of 0.0343 mg/L and limit of quantification of 0.104 mg/L, precicision of 0.382 - 1.78%, sensitivity of $4.64 \times 10^4 \text{ L mol}^{-1} \text{ cm}^{-1}$, and accuracy of 82.11-100.3%. SDBS concentration in the fish tissue increases with the increase in SDBS concentration in cultivating water. The concentration of SDBS in catfish, red tilapia fish, and carp from local markets were 0.0012 to 0.0029 mg/g, 0.0038 to 0.0077 mg/g and 0.0008 to 0.0026 mg/g, respectively.

Key word : validation method, SDBS, *acridine orange*, fish