ANALISIS NATRIUM DODESILBENZENA SULFONAT DALAM IKAN LELE SECARA MASERASI DAN SPEKTROFOTOMETRI UV-VIS MENGGUNAKANMETILEN BIRU

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INTISARI

Telah dilakukan validasi metode analisis *Sodium Dodecylbenzene Sulfonate* (SDBS) pada ikan lele secara maserasi dan spektrofotometri UV-Vis menggunakan metode *Methylene Blue Active Substances* (MBAS). Penelitian ini bertujuan untuk menentukan %*recovery* dari metode analisis SDBS dalam ikan lele serta mengkaji hubungan konsentrasi SDBS dalam ikan lele dengan paparan SDBS selama budidaya. Tahap awal penelitian ini adalah validasi metode meliputi koefisien korelasi, sensitivitas, *Limit of Detection* (LOD), *Limit of Quantitation* (LOQ), presisi, dan akurasi dalam air budidaya dan ikan lele. Ekstraksi SDBS dilakukan secara maserasi dengan metanol selama 16 jam dan dianalisis secara spektrofotometri UV-Vis menggunakan metode MBAS. Selanjutnya, metode ini diaplikasikan pada ikan konsumsi.

Parameter validasi analisis SDBS dalam air budidaya masing-masing adalah koefisien korelasi 0,9940, sensitivitas $9{,}824 \times 10^4$ L mol^{-1} cm^{-1}, LOD 0,03108 mg/L, LOQ 0,1037 mg/L, presisi 0,1105-1,116%, dan akurasi 98,32-99,65%. Parameter validasi analisis SDBS dalam ikan lele masing-masing adalah koefisien korelasi 0,9944, sensitivitas $10{,}57 \times 10^4$ L mol^{-1} cm^{-1}, LOD 0,01776 mg/L, LOQ 0,05922 mg/L, presisi 0,1351-1,300%, dan akurasi 87,64-90,01%. Kandungan SDBS dalam ikan meningkat dengan meningkatnya paparan senyawa tersebut dalam air budidaya. Nilai *Bioconcentration Factor* (BCF) berbanding terbalik dengan SDBS yang terpapar dalam air budidaya ikan lele. Konsentrasi SDBS pada ikan lele, nila, dan gurame di pasar tradisional masing-masing adalah 5,719-8,162; 5,180-6,548; dan 2,973-5,874 mg/kg. Secara umum, metode analisis SDBS dalam ikan secara maserasi dan spektrofotometri UV-Vis dengan MBAS menunjukkan hasil yang baik dan dapat diaplikasikan untuk analisis rutin SDBS dalam ikan.

Kata kunci: validasi metode, SDBS, maserasi, MBAS, ikan

ANALYSIS OF SODIUM DODECYLBENZENE SULFONATE IN CATFISH BY MACERATION AND UV-VIS SPECTROPHOTOMETRY USING METHYLENE BLUE

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ABSTRACT

Method validation of Sodium Dodecylbenzene Sulfonate (SDBS) analysis in catfish by maceration and UV-Vis spectrophotometry using Methylene Blue Active Substances (MBAS) method was performed. This research aimed to determine %recovery of SDBS analysis method in catfish and determine the relation between SDBS concentration in catfish after being exposed during cultivation. The first stage of this research was method validation comprising correlation coefficient, sensitivity, Limit of Detection (LOD), Limit of Quantitation (LOQ), precision, and accuracy. The extraction of SDBS by maceration with methanol for 16 h and analysis by UV-Vis spectrophotometry using MBAS were performed. Then, this method was applied to analyze SDBS in fish.

The results of validation of SDBS analysis in cultivating water show that the correlation coefficient 0.9940, sensitivity 9.824×10^4 L mol^{-1} cm^{-1}, LOD 0.03108 mg/L, LOQ 0.1037 mg/L, precision 0.1105-1.116%, and accuracy 98.32-99.65%, respectively. The results of validation of SDBS analysis in cultivated catfish give correlation coefficient 0.9944, sensitivity 10.57×10^4 L mol^{-1} cm^{-1}, LOD 0.01776 mg/L, LOQ 0.05922 mg/L, precision 0.1351-1.300%, and accuracy 87.64-90.01%, respectively. The SDBS concentrations in fish increase with the increase in the SDBS concentration in cultivating water. *Bioconcentration Factor* (BCF) values were inversely proportional to the concentration of SDBS in the cultivating water. The concentrations of SDBS on catfish, tilapia, and carp in traditional markets were 5.719-8.162; 5.180-6.548; and 2.973-5.874 mg/kg, respectively. In general, analysis method of SDBS in catfish by maceration and UV-Vis spectrophotometry with MBAS show a good result and can be used as a routine analysis in fish.

Keywords: method validation, SDBS, maceration, MBAS, fish.