

Universitas Ngudi Waluyo
Program Studi Farmasi, Fakultas Kesehatan
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Lita Maria
051191048

VALIDASI DAN ANALISIS KANDUNGAN ASAM MEFENAMAT PADA JAMU PEGAL LINU YANG BEREDAR DI KABUPATEN SEMARANG DENGAN METODE SPEKTROFOTOMETRI UV-Vis

ABSTRAK

Latar Belakang: Berdasarkan temuan BPOM pada tahun 2022, yaitu menemukan 41 jenis jamu tradisional yang mengandung BKO. Salah satu BKO yang ditambahkan yaitu asam mefenamat yaitu terdapat pada jamu pegal linu. Penelitian ini bertujuan untuk menganalisis kandungan asam mefenamat pada jamu pegal linu yang beredar di Kabupaten Semarang dengan menggunakan metode Spektrofotometri UV-Vis.

Metode: Penelitian ini merupakan penelitian eksperimental dengan teknik *insidental sampling* dilihat dari kriteria inklusi. Pengambilan 5 sampel yang beredar di Kabupaten Semarang. Analisis kualitatif menggunakan metode KLT dan analisis kuantitatif menggunakan metode Spektrofotometri UV-Vis, serta validasi metode yang meliputi uji linearitas, uji presisi, uji akurasi, dan uji LOD dan LOQ.

Hasil: Hasil analisis kualitatif, sampel dengan kode B dikatakan positif mengandung asam mefenamat dengan nilai R_f 0,63. nilai R_f yang diperoleh sama dengan nilai R_f baku asam mefenamat yaitu sebesar 0,63. Panjang gelombang maksimum yang diperoleh yaitu 288 nm dan persamaan garis linier $y = 0,0357x + 0,0711$. Validasi metode didapatkan hasil R sebesar 0,998 yang menandakan linier, RSD sebesar 0,934 yang $\leq 2\%$ presisi yang baik, dan %*recovery* sebesar 101%, 104%, dan 103% yang masuk rentang 80-120%, LOD sebesar 0,49 $\mu\text{g/mL}$ dan LOQ sebesar 1,6 $\mu\text{g/mL}$. Hasil kuantitatif diperoleh kadar asam mefenamat pada sampel B yaitu sebesar $3,19\% \pm 0,1710$.

Simpulan: Berdasarkan hasil penelitian, sampel dengan kode B dengan nilai R_f 0,63 dikatakan positif mengandung asam mefenamat dengan diperoleh kadar sebesar $3,19\% \pm 0,1710$, sedangkan untuk sampel A, C, D dan E tidak mengandung asam mefenamat.

Kata Kunci: Jamu Pegal Linu, Asam Mefenamat, Kromatografi Lapis Tipis, Spektrofotometri UV-Vis.

Ngudi Waluyo University
Pharmacy Study Program, Faculty of Health
Final Project, January 2023
Lita Maria
051191048

VALIDATION AND ANALYSIS OF MEFENAMIC ACID CONTENT IN HERBAL AREA CIRCULATING IN SEMARANG REGENCY USING UV- Vis SPECTROPHOTOMETRY METHOD

ABSTRACT

Background: Based on findings of the National Food and Drug Agency in 2002, they found 41 types of traditional herbal medicine containing medicinal chemicals. One of the medicinal chemicals added is mefenamic acid. This study aims to analyze the content of mefenamic acid in the stiff rheumatic herbal medicine circulating in Semarang Regency using the UV-Vis Spectrophotometry method.

Methods: This research is an experimental study with incidental sampling technique seen from the inclusion criteria. Taking 5 samples circulating in Semarang Regency. Qualitative analysis used the TLC method and quantitative analysis used the UV-Vis Spectrophotometry method, as well as validation methods which included linearity tests, precision tests, accuracy tests, and LOD and LOQ tests.

Results: The result of the qualitative analysis, the sample with code B was said to be positive for mefenamic acid with an Rf value of 0,63. The Rf value obtained is the same as the standart Rf value of mefenamic acid, which is 0,63. The maximum wavelength obtained is 288 nm and the equation for the linear line is $y = 0,0357 x + 0,0711$. The validation of the method yielded an R of 0,998 which was marked linear, RSD of 0,934 which $\leq 2\%$ good precision, and %recovery of 101%, 104%, and 103% which was in the range of 80-120%, LOD of 0.49 $\mu\text{g}/\text{mL}$ and LOQ of 1.6 $\mu\text{g}/\text{mL}$. Quantitative results obtained mefenamic acid levels in sample B which is equal to $3.19\% \pm 0,1710$.

Conclusion: Conclusion: Based on the results of the study, samples with code B with an Rf value of 0.63 were said to be positive for mefenamic acid with a concentration of $3.19\% \pm 0,1710$, while samples A, C, D and E did not contain mefenamic acid.

Keywords: Herbal Medicine, Mefenamic Acid, Thin Layer Chromatography, UV-Vis Spectrophotometry.