ABSTRAK

Senyawa basa Schiff turunan sulfanilamida-imina telah disintesis dan diketahui memiliki aktivitas antimitosis yang dapat menghambat pertumbuhan sel kanker. Pada penelitian ini akan disintesis 4-[(4'-hidroksi-3'-metoksibenzilidena)-amino]-benzensulfonamida dari sulfanilamida dan vanilin dengan katalis asam sulfat pada pH 4-5 berdasarkan reaksi adisi-eliminasi. Senyawa tersebut diduga memiliki antimitosis lebih baik. Hal ini diakibatkan oleh adanya gugus hidroksi pada posisi para yang diketahui dapat meningkatkan aktivitas penghambatan sel kanker.

Sintesis senyawa 4-[(4'-hidroksi-3'-metoksibenzilidena)-amino]-benzensulfonamida dilakukan dengan mereaksikan 3 mmol sulfanilamida dan 1 mmol vanilin dengan katalis asam sulfat pada pH 4-5 diaduk selama 24 jam. Adapun analisis senyawa hasil sintesis yang dilakukan meliputi: Pemeriksaan organoleptis, pemeriksaan kelarutan, pemeriksaan titik lebur, elusidasi struktur dengan spektrofotometri inframerah, spektrometri massa, dan spektroskopi ^{1}H-NMR, dan perhitungan rendemen.

Hasil penelitian menunjukkan bahwa senyawa hasil sintesis berupa serbuk berwarna kuning, tidak berbau, agak sukar larut dalam aseton, sukar larut dalam metanol, etanol, dan praktis tidak larut dalam akuades panas, kloroform, dan etil asetat. Rendemen rata-rata senyawa hasil sintesis 20,35% dan jarak lebur sebesar 201,8-202,6^{o}C. Elusidasi struktur menggunakan spektra inframerah, spektra massa, dan spektra ^{1}H-NMR menunjukkan bahwa senyawa hasil sintesis merupakan senyawa campuran yang terdiri dari senyawa 4-[(4'-hidroksi-3'-metoksibenzilidena)-amino]-benzensulfonamida, sulfanilamida, dan vanilin.

Kata kunci : Basa Schiff, antimitosis, sulfanilamida, vanilin, reaksi adisi-eliminasi

ABSTRACT

Schiff base compound sulfanilamide-imine derivatives have been synthesized and they were known to have antimitotic activity that can inhibit the growth of cancer cells. This research will be synthesized 4-[(4'-hydroxy-3'-methoxybenzilidene)-amino]-benzenesulfonamide from sulfanilamide and vanillin with sulfuric acid catalyst at pH 4-5 by addition-elimination reaction. This compound is suspected have a better antimitotic activity. This is caused by the presence of hydroxyl group at the para position which is known to enhance the inhibitory activity of cancer cells.

Synthesis of compound 4-[(4'-hydroxy-3'-methoxybenzilidene)-amino]-benzenesulfonamide was performed by reacting 3 mmol of sulfanilamide and 1 mmol of vanillin with sulfuric acid at pH 4-5 was stirred for 24 hours. The analysis of the compound synthesized include: Organoleptic test, solubility test, melting point test, structure elucidation by infrared spectrophotometry, mass spectrometry, and ^{1}H-NMR spectroscopy and calculations of yield.

The results showed that the synthesized compound was in the form of yellow powder, odorless, slightly soluble in acetone, sparingly soluble in methanol, ethanol, and practically insoluble in hot distilled water, chloroform, and ethyl acetate. The average yields were obtained 20.35% and its melting range of 201.8 to 202.6°C. Structure elucidation using infrared spectra, mass spectra and ^{1}H-NMR showed that the compound is mixture compound which consist of 4-[(4'-hydroxy-3'-methoxybenzilidene)-amino]-benzenesulfonamide, sulfanilamide and vanillin.

Keyword : Schiff base, antimitotic, sulfanilamide, vanillin, addition-elimination reaction