ANALISIS KUERSETIN DALAM DISPERSI PADAT DENGAN *ULTRA HIGH PERFORMANCE LIQUID CHROMATOGRAPHY*

SKRIPSI SARJANA FARMASI

Oleh

CARMELIA SARASWATI

1211012045

Dosen Pembimbing:

1. **Prof. Dr. Henny Lucida, Apt**
2. **Dr. Salman, M.Si, Apt**

FAKULTAS FARMASI

UNIVERSITAS ANDALAS

PADANG

2018

ANALISIS KUERSETIN DALAM DISPERSI PADAT DENGAN *ULTRA HIGH PERFORMANCE LIQUID CHROMATOGRAPHY*

ABSTRAK

Kuersetin merupakan senyawa alam yang dengan aktifitas antioksidan yang potensial namun konsentrasinya dalam darah sangat rendah sehingga diperlukan formulasi yang dapat membantu meningkatkan kelarutan dan konsentrasinya, seperti sediaan dispersi padat. Pada penelitian ini dilakukan analisis sediaan dispersi padat kuersetin dalam plasma dengan *Ultra High Performance Liquid Chromatography*.Dispersi padat kuersetin diformulasikan dengan polivinilpirolidon (PVP) K-30 dengan rasio 1:9 menggunakan metode *spray drying*.Sistem kromatografi terdiri atas kolom C18 (2,1 x 100 mm, 1,8 µm) dengan fase gerak gradien asam formiat 0,1%:asetonitril (95:5, v/v), dideteksi pada panjang gelombang ultraviolet 370 nm dan laju alir 0,35 ml/menit. Metode analisis ini memenuhi kriteria linearitas (r=0,9994), serta presisi dan akurasi dengan nilai %*diff*dankoefisien variansi tidak melebihi ±15%. Nilai batas deteksi(BD) kuersetin 0,403 µg/ml dan batas kuantitasi (BK) 1,344 µg/ml. Kuersetin diekstraksi dalam plasma menggunakan metode pengendapan protein dengan pelarut asetonitril dan metanol, kemudian dikocok dengan vorteks selama 30 detik setiap 2 menit sebanyak 5 kali dan disentrifugasi pada kecepatan 4.000 rpm selama 10 menit.Hasil penelitian diperoleh nilai perolehan kembali kuersetin dalam plasma sebesar 21,768% - 40,926% dan dispersi padat kuersetin sebesar 50,572% - 93,821%.

Kata kunci: Kuersetin, UHPLC, validasi, plasma

ANALYSIS OF QUERCETIN SOLID DISPERSION WITH ULTRA HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

ABSTRACT

Quercetin is a natural compoundwhich belongs to flavonoid group with potent antioxidant activity, but it has poor solubilty in water and low blood concentration, the use of solid dispersion systems could improve its solubility challenge in water and improve the concentration in blood. The purpose of this study was to analyze quercetin solid dispersion using Ultra High Performance Liquid Chromatography. Solid dispersion of quercetin was formulated with polyvinylpyrrolidone (PVP) K-30 by spray drying method using 1:9 ratio. The chromatographic system equipped with C18 column (2.1 x 100 mm, 1.8 µm) and a gradient mobile phase consisted of 0.1% acid formic in water and acetonitril HPLC grade (95:5,v/v) run at flow rate 0.35 ml/minute for 5 minutes. The UV detection wavelength was set at 370 nm. This method fulfilled the criteria for linearity (r=0.9994), also the criteria for accuracy and precision by %diff and coefficient of variation values did not exceed ±15%. The Limit of Detection (LOD) was 0.403 µg/ml and Limit of Quantitation (LOQ) was 1.344 µg/ml. Quercetin extraction from plasma was done by deproteination with acetonitril and methanol, vortexed for 30 seconds every 2 minutes for 5 times, then centrifuged at 4,000 rpm for 10 minutes. The recovery of quercetin in plasma was 21.768% - 40.926%, and the recovery for quercetin solid dispersion was 50.572% - 93.821%.

Keywords: Quercetin, UHPLC, solid dispersion, validation