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Supplementary Materials

A Rapid HPLC Method for the Concurrent Determination of Several Antihypertensive Drugs from Binary and Ternary Formulations

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Equations Used for Calculation

1. Resolution:

Resolution is measured by dividing the difference in peak retention times by the average peak width.

Resolution Equation

$$Rs = (t_{R2} - t_{R1})/(1/2)(t_{W1} + t_{W2}) \quad (1)$$

Where Rs = resolution t_{R2} = retention time of 2nd peak t_{R1} = retention time of 1st peak t_{W1} = Peak width of 1st peak t_{W2} = Peak width of 2nd peak

A resolution of 1.5 is considered a complete separation.

2. Tailing factor (Peak tailing):

Where T = tailing factor

$$T = (a + b)/2a \quad (2)$$

a = distance from the leading edge of peak to the midpoint (measured at 5% of peak height)

b = distance from the point at peak midpoint to the trailing edge (measured at 5% of peak height)

Ideal peak has T =1 but values in the range 0.9 – 1.1 are acceptable

3. Percent relative error:

$$RE\% = [(\text{Theoretical value} - \text{Experimental value})/\text{Theoretical value} \times 100\%] \quad (3)$$

1. Percent relative standard deviation:

$$RSD\% = (\text{Standard deviation/mean}) \times 100\% \quad (4)$$

Preparation of standard solutions for validation

Linearity

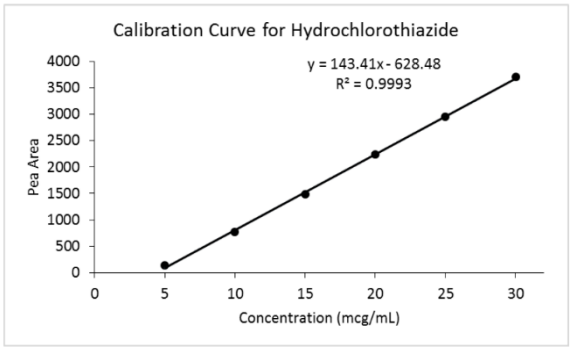
Standard solution of AMD, HCZ, OLM, IRB and TEL (1000μg mL^{-1}) was prepared separately by dissolving 100 mg of analyte in 100 mL volumetric flask. Further for linearity 10, 50, 75, 100 125 and 150 μL of AMD solution, 50, 100, 150, 200, 250 and 300 μl of HCZ solution, 50, 200, 400, 800, 1200 and 1600 μl of OLM and TEL solution and 100, 1000, 1500, 2000, 2500 and 3000 μL of IRB solutions were transferred in to 10 mL volumetric flask. Final volume was adjusted with the mobile phase to 10 mL mark. 20 μL of this solution was injected into the HPLC system in triplicate.

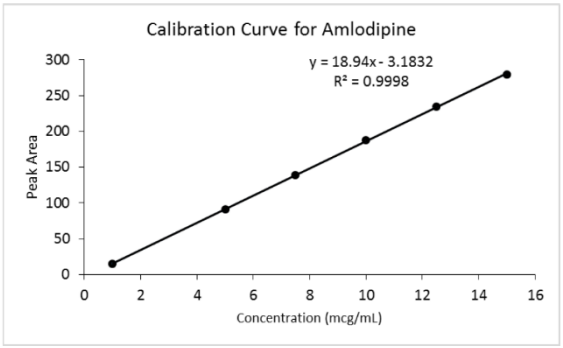
Precision

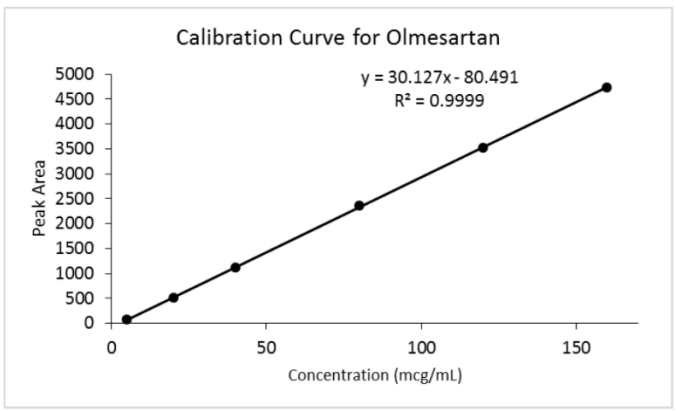
For precision 10, 75, and 150 μL of AMD solution, 50, 150, and 300 μl of HCZ solution, 50, 800, and 1600 μl of OLM and TEL solution and 100, 1500, and 3000 μL of IRB solutions were transferred in to 10 mL volumetric flask. Final volume was adjusted with the mobile phase to get three concentrations (low, medium and high) of all analytes. 20 μL of this solution was injected into the HPLC system in triplicate for inter day precision and same solutions were injected for three successive days for intra day precision.

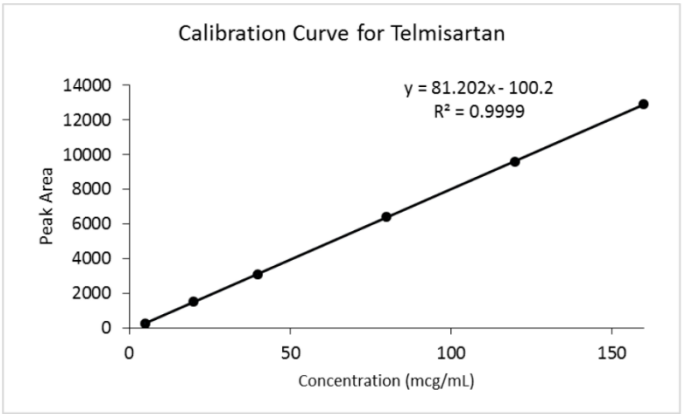
Accuracy

Laboratory prepared mixture consisting of HCZ 10 mg, AMD 5 mg, TEL 40 mg, OLM 20 mg and IRB 100 mg was prepared. 17.5 mg of mixture was weighed and dissolved in 100 ml of ethanol. 20 μl of solution was injected in triplicate and concentration of all analytes were calculated using corresponding regression equations. Further 8.75 mg, 17.5 mg and 26.25 mg of freshly prepared mixture was added to 17.5 mg of above prepared mixture and dissolved in 100 ml of ethanol. All three solutions were analyzed by injecting 20 μl in triplicate.









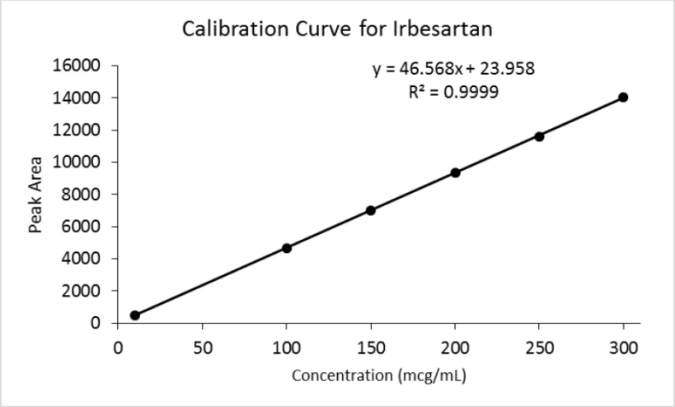


Figure S1. Calibration curves for analytes by proposed RP HPLC method.

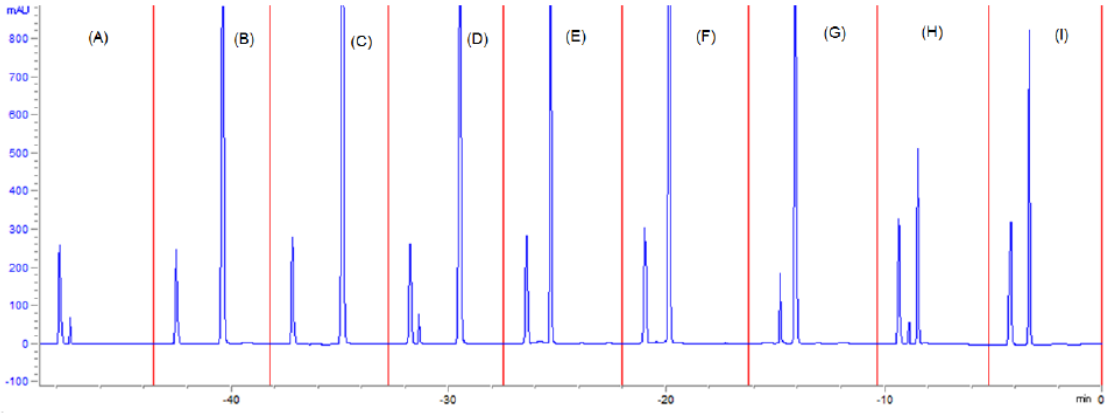


Figure S2. Chromatograms of formulations; HCZ:AMD:12.5:5 µg/ml (**A**); HCZ:TEL:12.5:40 µg/ml (**B**); HCZ:TEL:12.5:80 µg/ml (**C**); HCZ:AMD:TEL:12.5:5:40 µg/ml (**D**): HCZ:IRB:12.5:150 µg/ml (**E**): HCZ:IRB:12.5:300 µg/ml (**F**): AMD:IRB:10:150 µg/ml (**G**): HCZ:AMD:OLM:12.5:5:20 µg/ml (**H**): HCZ:OLM:12.5:40 µg/ml (**I**).

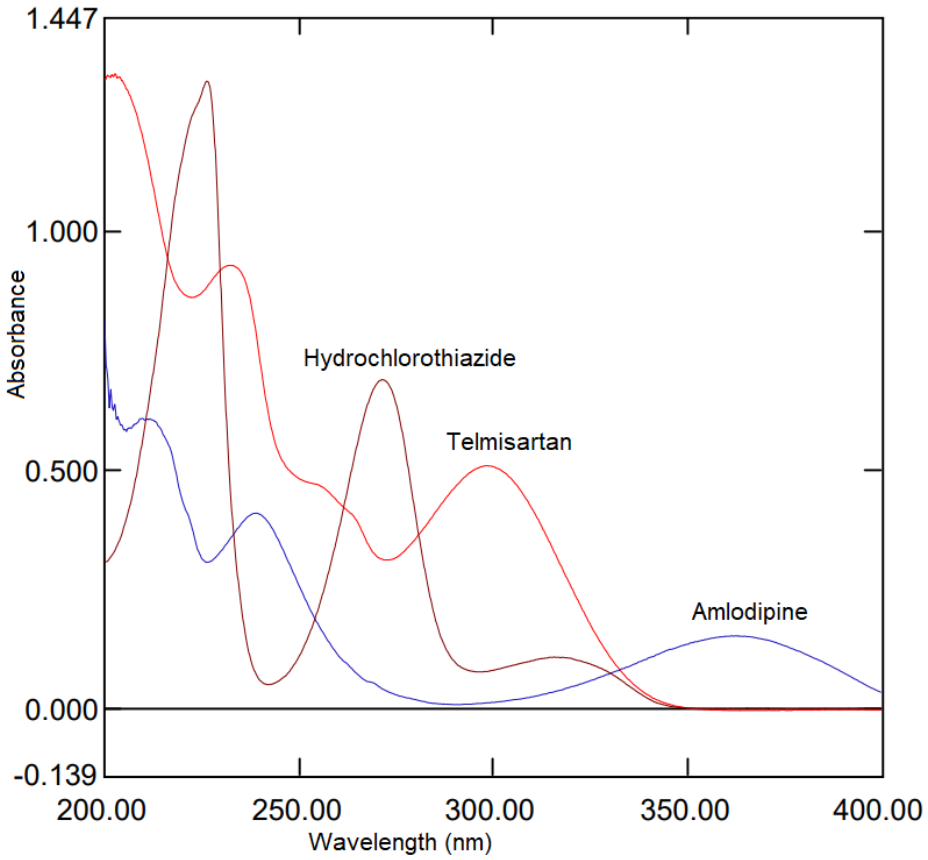


Figure S3. UV absorption spectra of amlodipine, Hydrochlorothiazide and Telmisartan.