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# Development of a simple LC-MS/MS method for the quantification of losartan levels

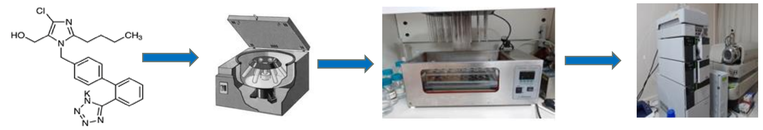
Ali Unlu, Duygu Eryavuz Onmaz, Firdevs Sak, Menekse Kuzu
Selcuk University Faculty of Medicine, Department of Biochemistry, 42130 Konya, Turkey

## PURPOSE / OBJECTIVES

Losartan is an orally used angiotensin II receptor antagonist for the treatment of hypertension. It is superior to previous peptide receptor antagonists and angiotensin converting enzyme inhibitors due to its high specificity, selectivity and tolerability. Common adverse effects related with losartan are cough, diarrhea, fatigue, hyperkalemia, renal insufficiency, angioedema, hypoglycemia, anemia and urinary tract infection. The aim of this study was to develop a sensitive, rapid and simple measurement method for the quantification of losartan in biological samples.

## MATERIALS & METHODS

Mass spectrometric analyses were performed using an Shimadzu LC-20-AD (Kyoto, Japan) coupled with a ABSCIEX API 3200 triple quadrupole mass spectrometer (USA) equipped with an electrospray ion source (ESI) operating in positive mode. Briefly, 100 µL internal standard (200 ng/mL carbamazepine) and 750 µL acetonitrile were added to 250 µL sample solution and vortexed for 30 seconds. The mixture was centrifuged at 2000×g for 15 minutes and 30 µL of supernatant was injected into the LC-MS/MS system.




## RESULTS

The method was linear in the range of 1.95-2000 ng/ml with a correlation coefficient (R2) of 0.997. Total run time was 3 minutes. Intra- and inter-assay CV% values ranged between 2.8 and 9.6%. The inter-assay accuracy values ranged from 86.4 to 112.8%.

- **We developed a rapid, robust and reliable quantitation method for losartan**
- **Inter-assay imprecision were less than %9.7 for this method**
- **The method advantageous in terms of simple pretreatment, short run time, good extraction recovery and imprecision**
- **The developed method can be used for the measurement of losartan levels in clinical samples**

## RESULTS

The predicted concentrations of losartan deviated within ±15% of the nominal concentrations in autosampler (48 h), reinjection (24 h), repeated three freeze–thaw cycles. The matrix effect values were less than 12%, while the extraction recovery values ranged from 88.1% to 112.8%.

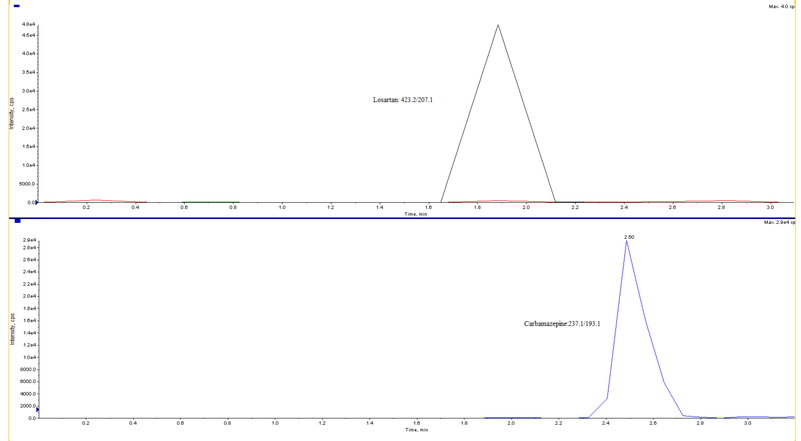



Figure 1. Example chromatogram of losartan (500 ng/ml) and internal standard (200 ng/ml carbamazepine).

## SUMMARY/CONCLUSION

We have developed a rapid, simple, cost-effective and reproducible LC–MS/MS method for quantitation of losartan levels. The developed method can be used reliably in clinical samples for the monitoring of losartan levels.