

## Spot Test Paper Platform Coupled with DLLME for Detection of Furosemide Doping

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Furosemide is a diuretic widely used for treatment of hypertension, heart and renal failure. Due to its diuretic action, its use could be considered as doping, because it causes weight loss and masks other doping compounds by decreasing their concentrations in urine. Dispersive liquid-liquid microextraction (DLLME) is a novel and powerful preconcentration and extraction technique based on miniaturization. Its combination with a paper platform provides an attractive methodology that offers low cost, simplicity and portability. The spot test was designed using Corel DRAW X5. The template was printed on a filter paper, using a wax printer, followed by heating the paper to form hydrophobic barriers. The chromogenic reagent was 50mMiron nitrate. A mixture of acetonitrile (disperser solvent) and dichloromethane (extractor solvent), in a ratio of 1:9 was used as the solvent in the DLLME procedure. Samples were prepared by adding 10 mL of urine and 2mL of the mixed solvents to a tube, with vortexing and centrifugation. A 1.0  $\mu$ L aliquot of the lower phase was used in the spot test. After drying, 1.0  $\mu$ L of the iron solution was added and digital images of the system were acquired with analysis using ImageJ<sup>®</sup> software (blue channel). An analytical curve was constructed and the LOD and LOQ obtained were 0.95 and 3.18 mM, respectively. The matrix showed no significant influence in the analysis. Natural urine samples were analyzed by the proposed method and by HPLC-UV. The results indicated that the developed methodology was precise and accurate.

### Biography

Eduardo Luiz Rossini is a PhD student at Institute of Chemistry of São Paulo State University – UNESP – Araraquara, Brazil. He received his master degree in chemistry in the same institution under the supervision of Prof. Helena Redigolo Pezza. He has experience in analytical chemistry with focus on micro fabrication, spectrometric methods and low-cost devices. His research interest is the development of paper platform for clinical analysis.