

## Determination of Sitagliptin In Human Plasma After a Dispersive Liquid-Liquid Microextraction

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**SUMMARY.** Sitagliptin is an oral anti-diabetic agent that is effective in lowering of fasting and post-prandial blood glucose level via blocking dipeptidyl-peptidase. Various analytical methods have been used for determination of sitagliptin in bulk drug, pharmaceutical formulations and biological matrices. The aim of this study was to determine sitagliptin in human plasma sample using a new dispersive liquid-liquid microextraction (DLLME) procedure in combined with HPLC. Under the optimum conditions, the method was validated over the concentration range of 0.09-2 µg/mL in human plasma. Inter-day and intra-day precisions were less than 10 % and the achieved recoveries were 95-103%. Furthermore, the validated method was successfully applied for the determination of sitagliptin in spiked plasma samples. The combined DLLME with HPLC is a simple, low cost and fast determination method for sitagliptin in human plasma.

**RESUMEN.** La sitagliptina es un agente antidiabético oral que es eficaz para disminuir el nivel de glucosa en sangre posprandial y en ayunas mediante el bloqueo de la dipeptidil-peptidasa. Se han utilizado diversos métodos analíticos para la determinación de sitagliptina en medicamentos a granel, formulaciones farmacéuticas y matriz biológica. El objetivo de este estudio fue determinar la sitagliptina en una muestra de plasma humano utilizando un nuevo procedimiento de microextracción líquido-líquido dispersivo (DLLME) en combinación con HPLC. En condiciones óptimas, el método se validó en un rango de concentración de 0.09-2 µg/mL en plasma humano. La precisión interdía e intradía fue inferior al 10% y las recuperaciones logradas fueron 95-103%. Además, el método validado se aplicó con éxito para la determinación de sitagliptina en muestras de plasma enriquecidas. La DLLME combinada con HPLC es un método simple, de bajo costo y de determinación rápida para la sitagliptina en matriz biológica.

**KEY WORDS:** determination, dispersive liquid-liquid microextraction, liquid chromatography, plasma levels, sitagliptin.

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