



Determination of Enantiomeric Methylphenidate in Human Plasma by High Performance Liquid Chromatography

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Abstract : Methylphenidate (MPD) is a chiral drug with stimulant action, used for the treatment of attention deficit hyperactivity disorder (ADHD) and narcolepsy. It has been used improperly and illegally, as it is assumed to improve cognitive performance. It was established a method of determining methylphenidate isomers in human plasma by separating racemic methylphenidates from the mixture using high performance liquid chromatography (HPLC) with a diode/UV detector. The separation was performed on a Chirobiotic V2 column, a mobile phase of methanol/ammonium acetate (92:8, V/V; 20 mM pH 4.1) and flow rate of 1 mL min⁻¹; retention times were 7.0 and 8.1 min for *l*-MPD and *d*-MPD, respectively, detected at 215 nm. The HPLC method was validated via linearity, precision, accuracy and recovery. The method was suitable for separation and determination of enantiomers of methylphenidate in human plasma and is considered precise and accurate.

Keywords: methylphenidate, enantiomers, HPLC-DAD/UV.

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