

论文  
手性毛细管气相色谱法测定人尿中美芬妥英光学异构体含量的方法学研究

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摘要:

关键词: 气相色谱法 美芬妥英 光学异构体

A CHIRAL CAPILLARY GAS CHROMATOGRAPHIC METHOD FOR DIRECT DETERMINATION OF ENANTIOMERS OF MEPHENYTOIN IN HUMAN URINE

TY Kuang; JM Zhang ; AQ Zou and YQ Lou

Abstract:

A gas chromatographic method equipped with nitrogen-phosphorus detector was developed for the determination of the *S*- and *R*-enantiomers of the anticonvulsant, mephenytoin (MP) in human urine. Dichloromethane (4 ml) was added to 1 ml urine, the mixture was shaken and centrifuged. The organic phase was transferred to another tube and blown to dryness under nitrogen on water bath (37°C). The residue was dissolved in 10 µl ethylacetate and 1~2 µl was injected into the GC. Our results showed that direct enantiomeric separation of mephenytoin was obtained by using a chiral capillary column, the retention times for *S*- and *R*-mephenytoin were 25. 5 and 26. 2 min respectively, with a detection limit less than 50 ng/ml of mephenytoin. Similar linear and reproducible standard curves were obtained over the concentration range of 53.2 to 2128. 0 ng/ml (for *S*-MP,  $r=0. 9914\pm 0. 0070$ ,  $n=6$ ; and for *R*-MP,  $r=0. 9939\pm 0. 0070$ ,  $n=6$ ), and the mean recoveries of *S*- and *R*-MP were 95. 4% and 95. 8% respectively. The within--day relative standard deviations were less than 8. 8% for both *S*- and *R*-MP, and that of between--days were less than 14.3%. There was a good reproducibility of the urine *S*/*R* mephenytoin determined in China and in Sweden by using similar method in 107 Chinese volunteers after a single oral dose of 100 mg racemic mephenytoin ( $r=0. 9091$ ,  $P<0. 001$ ).

Keywords: Mephenytoin Hydroxylation Gas chromatography

收稿日期 1992-07-07 修回日期 网络版发布日期

DOI:

基金项目:

通讯作者:

作者简介:

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