

论文

人血浆中辅酶Q10的HPLC测定法及其动态研究

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摘要:

目的: 建立人血浆中辅酶Q10的高效液相色谱检测法, 以测定人体内辅酶Q10的经时变化过程。方法: 血浆经无水乙醇沉淀蛋白后, 以正己烷提取, 进行高效液相色谱法检测。色谱柱为Spherisorb C18 10 μm 25 cm×4.6 mm ID, 流动相为无水乙醇-水-冰醋酸(98:2:0.7), 检测波长为275 nm, 内标为辅酶Q9。结果: 在0.2~4.0

μg.ml⁻¹浓度范围内峰面积比与浓度呈良好的线性关系, r=0.9998, 方法重现性好, 提取回收率大于90%; 以本法测定了8名男性健康受试者服用辅酶Q10制剂前后血浆中辅酶Q10的浓度经时变化过程。结论: 用本法测定人血浆中辅酶Q10浓度结果满意; 人血浆中内源性辅酶Q10浓度为(763.3±86.3) ng.ml⁻¹, 且受饮食及运动量的影响。

关键词: 辅酶Q10; 高效液相色谱法

DETERMINATION OF COENZYME Q10 AND ITS CONCENTRATION-TIME CURVE IN HUMAN PLASMA BY HPLC

Ding Li; Yang Jin; Hua Yaping; Zhou Wei; Zhang Zhengxing and An Dengkui

Abstract:

AIM: To develop an HPLC method for the study of plasma concentration-time curve of coenzyme Q10 (CoQ10) in human body. METHODS: Chromatography was performed on a Spherisorb C18 column (25 cm×4.6 mm ID) with ethanol-water-acetic acid (98:2:0.7) as mobile phase. The detection wavelength was 275 nm. The internal standard was coenzyme Q9 (CoQ9). After deproteinization with ethanol, the plasma was extracted with n-hexane. RESULTS: A good linearity was obtained from 0.2~4.0 μg.ml⁻¹ of CoQ10 in human plasma with a correlation coefficient of 0.9998. The extraction recovery was more than 90%. The plasma concentration-time curve of CoQ10 of eight volunteers was determined by this method following a controlled clinical experiment. CONCLUSION: The established HPLC method was proved to be a good method for the determination of CoQ10 in human plasma. The experimental results showed that the human plasma concentration of endogenous CoQ10 was (763.3±86.3) ng.ml⁻¹ and was affected by food and movement.

Keywords: HPLC coenzyme Q10

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