

# Abstract

Biomed Chromatogr. 2006 Oct;20(10):1082-6.

## Determination of coenzyme Q10 in human seminal plasma by high-performance liquid chromatography and its clinical application.

Li K, Shi Y, Chen S, Li W, Shang X, Huang Y.

The Center of Medical Laboratory Science, Jinling Hospital, Nanjing 210002, Jiangsu, People's Republic of China.

**OBJECTIVE:** A high-performance liquid chromatographic (HPLC) method for the analysis of coenzyme Q10 (CoQ10) in human seminal plasma was developed and applied to investigate its clinical significance as a reference index relating to oxidative stress and infertile status of spermatozoa.

**METHODS:** After precipitation of proteins in seminal plasma with methanol, CoQ10 and coenzyme Q9 (CoQ9; internal standard) were extracted with hexane. The supernatant after centrifugation was evaporated to dryness with nitrogen at 45 degrees C. The residue was re-dissolved in isopropanol. HPLC separation of the sample solution was performed on a Lichrospher C(18) column with a mobile phase composed of isopropanol-methanol-tetrahydrofuran in the ratio of 55:39:6 (v/v/v) at a flow rate of 1.0 mL/min.

**RESULTS:** Under the chromatographic conditions described, the CoQ10 and CoQ9 had retention times of approximately 5.83 and 4.97 min, respectively. The peaks were detected at UV 275 nm. Good separation and detectability of CoQ10 in human seminal plasma were obtained. The method was linear in the range 0.01-10.00 microg/mL. The relative standard deviations within- and between-assay for CoQ10 analysis were 0.85 and 1.86%, respectively. The average recoveries were 94.1-99.0% for the human seminal plasma samples. The CoQ10 levels in seminal plasma of 195 patients and 23 control subjects were studied. CoQ10 concentrations in the two populations were: 37.1 +/- 12.2 ng/mL in the fertile group and 48.5 +/- 20.4 ng/mL in the infertile group.

**CONCLUSION:** The large difference ( $p < 0.01$ ) between the fertile and infertile populations is evident.

PMID: 16583456