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Development of HPLC method for simultaneous determination of four steroid hormones in different matrices

Areeg Z Alkarali[1], Lubna Kormod[1], Randa A Abdelsalam[2], Ghada M Hadad[2] and **Ahmed E El-Gendy[1]**
[1]Misr International University, Egypt
[2]Suez Canal University, Egypt

Since animal products are a major source of human exposure to steroids, the extensive use of these hormones resulted in a critical request for accurate, sensitive, simple and applicable methods for the determination of these steroid hormones in pure form and in different matrices as hen eggs, chicken liver and tilapia farming pond water. The aim of this work is to develop a reliable liquid chromatography coupled with mass spectrometric method for the determination of selected steroid hormones in complicated matrices as hen egg, chicken liver and tilapia farming pond water. Using solid phase and liquid liquid extraction methods for sample preparation, in the present study LCMS/MS method was demonstrated for the simultaneous separation and quantification of four steroid hormones ethinylestradiol, 17 alpha methyl testosterone, testosterone and progesterone. Using mobile phase of methanol and 0.1% formic in ratio (70:30) at different m/z ratios, the method validation was carried out on each hormone showing: linearity for ethinylestradiol 0.5 µg/ml to 30 µg/ml r^2=0.9997, 17α-methyl testosterone 0.5 µg/ml-20 µg/ml r^2=0.9999, Testosterone 0.5 µg/ml-20 µg/ml r^2=0.9999 and progesterone 0.5 µg/ml-20 µg/ml r^2=0.9999. LOD and LOQ values of ethinylestradiol, 17 α methyl testosterone and progesterone respectively (0.7 and 2.12), (0.23 and 0.69), (0.35 and 1.08) and (0.36 and 1.11). The method was validated using the ICH guidelines and successfully applied on egg, chicken liver and tilapia pond fresh water samples from Egypt.

Biography

Areeg Z Alkarali has completed her Bachelor's degree in Pharmaceutical Sciences at Misr International University in 2012 and Master's degree in Pharmaceutical Analytical Chemistry at Suez Canal University in 2018.

areeg.zakaria@miuegypt.edu.eg