A highly sensitive LC-MS/MS method for the analysis of tetracycline antibiotic residues in honey, developed using the SCIEX Triple Quad™ 3500 LC-MS/MS System

An accurate, selective and sensitive method was developed using the SCIEX Triple Quad™ 3500 LC-MS/MS System for the simultaneous quantification of four tetracycline residues in a honey matrix. Two MRM transitions were monitored for each analyte, and the ion ratio between the transitions was calculated for further confirmation. The developed method attained a detection limit of 0.500 ppb (tetracycline, chlortetracycline) and 1.000 ppb (oxytetracycline, doxycycline) in an aqueous solution. The matrix-based calibration showed excellent linearity with the correlation coefficient of $r \geq 0.99$ using the weighing factor $1 / x^2$ for all the analytes. The LOQ of 1.500 ppb was achieved for all four tetracycline antibiotic residues in the honey matrix. The SCIEX Triple Quad™ 3500 System was able to effectively quantify and confirm the presence of tetracycline residues in honey samples below the minimum required performance limit (MRPL), in compliance with regulatory bodies.

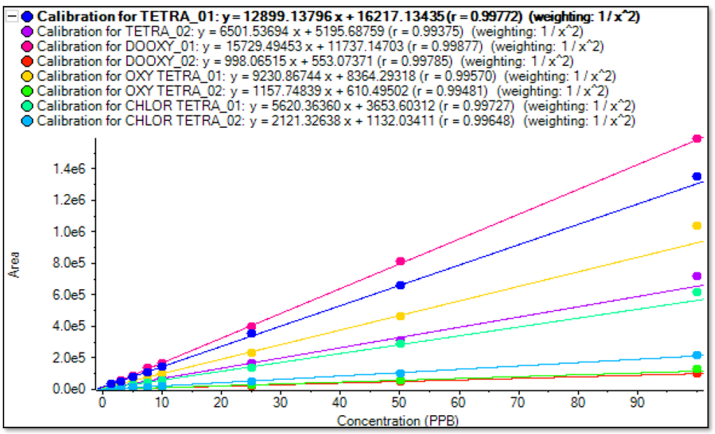

Figure 1. Calibration curve of four tetracycline antibiotics ranging from 1.5 to 100 ppb in honey extract

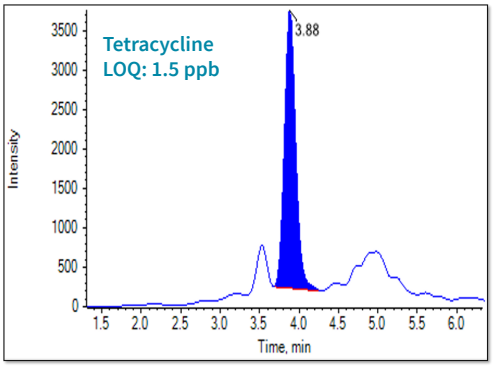

Figure 2. Chromatogram of tetracycline (m/z 445.0/410.0) at LOQ level (1.5 ppb) in honey extract

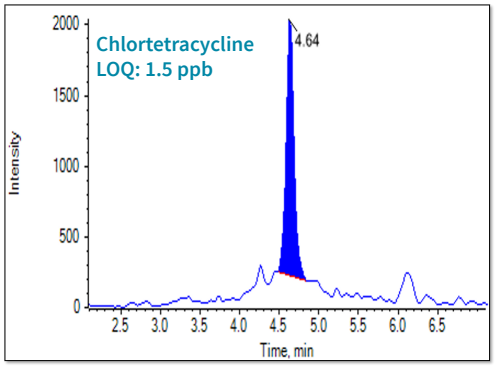

Figure 3. Chromatogram of chlortetracycline (m/z 479.0/444.3) at LOQ level (1.5 ppb) in honey extract

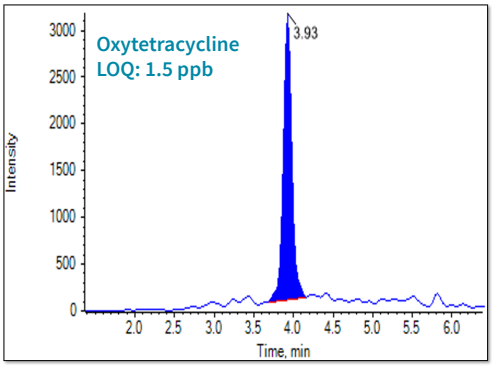

Figure 4. Chromatogram of oxytetracycline (m/z 461.0/426.0) at LOQ level (1.5 ppb) in honey extract

To learn more about this method, please email : Marketing.India@sciex.com.

RUO-MKT-07-11525-A

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