
Determination and characterization of quinolones in foodstuffs of animal origin by CE-UV, LC-UV, LC-FL, LC-MS AND LC-MS/MS

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Abstract In this work methods for the multiresidue determination of the series of quinolones include in the European regulation in food of animal origin are developed and validated in line with Commission Decision 2002/657/EC in terms of linearity, decision limit, capability detection, precision and stability. Multiresidue methods were established to allow the determination of quinolones covered by EU legislation in 2377/90/EC in muscle of chicken, turkey, pig and cow, plasma of cow and pig, liver of pig and milk of cow. First an extraction step was optimized and a SPE step was applied to clean-up and preconcentrate quinolones prior to their separation by CE or LC and determination by CE-UV, LC-UV, LC-FL, LC-MS with different ion sources (ESI, ApCI) and different mass analyser (Q, ToF) and LC-ESI-QqQ tandem mass spectrometry. The limits of quantification obtained are always lower than Maximum Residue Limit (MRL) established by EU for quinolones in animal products and they can be applied to the control of quinolones in foodstuffs of animal origin. Finally the proposed methods were applied to determine quinolones in samples of turkey and pig muscle, pig plasma and milk of cow. Excellent quality parameters and reduced time of analysis were obtained when LC-ESI-MS/MS is used, although the others techniques presented too satisfactory results.

Keywords: Quinolones, animal tissues, LC-UV, CE-UV, LC-FL, LC-MS, LC-MS/MS.
