



Validation of Residue Analysis Method for Sulfadiazine and Trimethoprim Drugs and their Residue Depletion in Chicken Eggs

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Abstract: A method, based on QuEChERS extraction and determination by liquid-chromatography tandem mass spectrometry (LC-MS/MS) technique was validated for simultaneous analysis of sulfadiazine (SDZ) and trimethoprim (TMP) residues in whole egg matrix. The limit of detection (LOD) and the limit of quantification (LOQ) were 0.21 and 0.29 µg/kg for SDZ, and 0.12 and 0.18 µg/kg for TMP, respectively. The intra and inter-day precisions of the method for both the analytes at LOQ level were ≤20%, with recoveries within the range of 80-110%. The method performance was in compliance with the criteria set by the Commission Decision 2002/657/EC guidelines. The method was applied to study depletion and distribution of SDZ and TMP residues in eggs after treating layer poultry birds with the therapeutic dose of application (100 mg/L of SDZ + 20 mg/L of TMP for 5 days) through drinking water. The SDZ residues tend to accumulate in egg white, while TMP residues accumulate in egg yolk. The residues of SDZ and TMP depleted to below their LOQs (SDZ- 0.29 µg/kg, TMP- 0.18 µg/kg) within 15 days.

Keywords: Sulfonamides, Diaminopyrimidines, Sulfadiazine, Trimethoprim, Residue depletion and distribution, Eggs, Poultry
