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Multi residue analysis for simultaneous determination of 75 veterinary drug residues in fishery products from domestic markets in South Korea

Gyeongyeol Kim, Eunhye Lee, Sooyeon Choi, Youngji Jung, Hyunjeong You, Joonshik Park, Mikyoung Jin, Sookhee Ha, Kwangsoo Yoo, Sujin Jeon, Kwangsoo Lee, Dongsul Kim and Changhee Lee

Busan Regional Office of Food and Drug Administration, South Korea

National monitoring of veterinary drugs and their metabolites should be conducted to manage potential risk for human and environment, thus Korean government institutes have performed monitoring veterinary drug residues for this purpose. In Korean Food Code, the multi-residue analysis method of 47 veterinary drugs with LC-MS/MS was established to ensure the safety of fishery products. In this study, we extended the number of target drugs to 75 for the improvement in efficiency to monitor their illegal use or abuse. A simple method for sample preparation based on the QuEChERS method, using disperse SPE (Solid-phase extraction) extraction with C18 and PSA (Prostate-specific antigen), was applied. The extracted samples were analyzed by liquid chromatography coupled with tandem mass spectrometry (LC-MS/MS). The analytical method was validated using three kinds of matrix (shrimp, eel and flat fish) at MRL levels (Manufacturing Readiness Level) according to the Codes guidelines (CAC/GL 71-2009). The coefficients of determination (r^2) of matrix-matched calibration were higher than 0.98 for all tested compounds. The average recoveries and the percent of relative standard deviations (RSD) were ranged from 70~116% and 0.97~22.62%, respectively. These results suggest that the established method is sufficient for use as a screening method for contaminants at the MRLs, and suitable for multiresidue analysis of various veterinary drugs in fishery products. We also performed monitoring of veterinary drug residues in fishery product samples purchased from domestic markets in South Korea. The several kinds of drug residues such as oxytetracycline were detected at the levels below MRLs.

Biography

Gyeongyeol Kim has been working for Ministry of Food and Drug Safety, Republic of Korea for eight years. She was working for food contaminants, food additives and new hazardous substances, and currently she is in charge of veterinary drugs.

kkky7767@korea.kr

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