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original scientific paper

Clenbuterol Residues in Plasma and Urine Samples of Food-Producing Pigs During and After Subchronic Exposure to a Growth-Promoting Dose

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Summary

The aim of the study is to evaluate the suitability of plasma and urine as matrices for clenbuterol residue determination during and after its subchronic administration at a growth-promoting dose to male pigs, using previously validated enzyme-linked immunosorbent assay (ELISA) as a screening method and liquid chromatography tandem mass spectrometry (LC-MS/MS) as a confirmation method. A high correlation coefficient between these analytical methods was obtained for both urine (R=0.9800) and plasma (R=0.9970) concentrations. Study results show the

plasma and urine concentration to vary greatly during oral treatment with clenbuterol for 28 days. The peak urine concentration ((88.54±50.54) ng/mL) recorded on day 21 was 40-fold peak plasma concentration ((2.25±1.54) ng/mL). After withdrawal period, the peak urine clenbuterol concentration ((42.93±10.52) ng/mL) recorded on day 0 was 24-fold plasma concentration ((1.79±0.97) ng/mL). The maximum allowed concentration of 0.5 ng/g in the liver as a regulated matrix for control of clenbuterol abuse was achieved in plasma on day 3 ((0.52±0.26) ng/mL) and in urine on day 7 of treatment withdrawal ((0.45±0.11) ng/mL). Study results indicate that urine and plasma may be suitable matrices for the control of clenbuterol abuse during fattening of food-producing pigs but have a limited value because of the rapidly decreasing concentration upon treatment withdrawal, in plasma in particular.

Key words: clenbuterol residues, growth promoting dose, subchronic exposure, pig, urine, plasma

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