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Discussion

Analytical strategies for the screening of veterinary drugs and their residues in edible products (Review), by Aerts et al.: an addendum

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Sir,

The recent review entitled "Analytical strategies for the screening of veterinary drugs and their residues in edible products" by Aerts et al. [J. Chromatogr. B, 667 (1995) 1–40] is a well-documented article concerning regulatory and analytical aspects of this problem. However, the data reported in various papers published by our group and related to this subject might have been quoted, discussed and listed in Table 8. Over the last years we have worked in the antibiotic field using a strategy based on high-performance liquid chromatography (HPLC) coupled to spectrophotometric detection (Table 1). In particular, attention has been focused on the importance of column-switching techniques and derivatization reactions to enhance selectivity and sensitivity. The main results can be found in the reports cited below: cephalexin was measured in calf tissues using HPLC system including a column-switching device for enrichment and purification steps [1]; the pharmacokinetics of amoxicillin were studied in calf

Table 1
Typical examples of HPLC methods used for antimicrobials

Drug	Matrix	Detection limit (μg/kg or μg/l)	Detection method	Reference
Cephalexin	Kidney, liver, fat, muscle	30	UV, 260 nm	[1]
Amoxicillin	Plasma	50	Fluorescence, ex. 385 nm, em. >415 nm, after LC post-column addition of fluorescamine	[2]
Amikacin	Plasma	25	Fluorescence, ex. 340 nm, em.>415 nm, after post-column derivatization with OPA-2 MERC	[3]
Gentamicin	Fat, muscle, kidney, liver	25[a]	Fluorescence, ex. 340 nm, em. 440 nm, after post-column derivatization with OPA-2 MERC	[4]
Neomycin	Muscle	25	Fluorescence, ex. 340 nm, em. 440 nm, after post-column derivatization with OPA-2 MERC	[5]
Josamycin	Kidney, liver, fat, muscle	25	Fluorescence, ex. 375 nm, em. 450 nm, after pre-column derivatization with cyclohexa-1,3-dione	[6]

OPA-2 MERC: *ortho*-phthalaldehyde–2-mercaptoethanol; ex., excitation; em., emission.
[a] 50 μg/kg in kidney and liver.

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plasma after protein precipitation using simultaneously HPLC with fluorescamine post-column reaction and a microbiological assay and results were compared [2]; aminoglycosides, i.e., amikacin in dog plasma [3] and gentamicin and neomycin in tissues of various species were analyzed in a HPLC system coupled with post-column derivatization with *ortho*-phthalaldehyde and 2-mercaptoethanol [4,5]; josamycin in porcine tissues was measured using pre-column derivatization of the aldehyde group with cyclohexa-1,3-dione and reversed-phase HPLC separation of the resulting adduct [6]. It is very important to refer to all the European laboratories working in this field.

References

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