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Rapid Methods for detection of Veterinary Drug residues in Meat

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Abstract

The use of substances having hormonal or thyreostatic action as well as b-agonists is banned in many countries. However, sometimes forbidden drugs may be added to feeds for illegal administration to farm animals for promoting increased muscle development or increased water retention and thus obtain an economical benefit. The result is a fraudulent overweight of meat but, what is worse, residues of these substances may remain in meat and may pose a real threat to the consumer either through exposure to the residues, transfer of antibiotic resistance or allergy risk. This has exerted a great concern among the meat consumers. The control of the absence of these forbidden substances in animal foods and feeds is regulated in the European Union by Directive 96/23/EC on measures to monitor certain substances and residues in live animals and animal products. Analytical methodology, including criteria for identification and confirmation, for the monitoring of compliance was also given in Decisions 93/256/EEC and 93/257/EEC. More recently, Decision 2002/657/EC provided rules for the analytical methods to be used in testing of official samples. New substances with anabolic properties are being detected year by year increasing the list of forbidden compounds to be tested. Furthermore, the extended practice consisting in the use of “cocktails” (mixtures of low amounts of several substances that exert a synergistic effect) to have a similar growth promotion, reduces the margin for an effective analytical detection. Thus, the evolution of the “black market” is making really difficult to have an effective analytical control of the residues of these substances in foods of animal origin. Control laboratories must face an increasing demand of analysis like the growing number of residues to be analysed in different types of samples, the strict guidelines for analytical methodologies according to the latest Directives, the increased costs of such new methodologies, the variety of residues to search per sample and the need to invest on powerful new instruments for identification and confirmatory purposes. Rapid and versatile screening methodologies make its control easier and reduce the number of non-compliant samples to be confirmed through tedious and costly confirmatory analytical methodologies. For instance, the multiresidue analysis can be performed better by using fast LC methods. Thus, the availability of new screening methodologies and the improvement of the existing ones will contribute to a better safety assurance of meat and other foods of animal origin.

Keywords: Drug Residue, Meat, Residues in food, Hormone.