SCREENING VETERINARY DRUGS IN PRODUCTS OF ANIMAL ORIGIN

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Veterinary drugs are widely used to treat or prevent disease in animals which can result in trace levels of drug residues in products of animal origin such as meat, fish, milk, eggs or honey. The presence of drug residues in the food chain is of concern due to their potential detrimental effect on human health. To protect consumer health and to ensure the high quality of animal products, maximum residue limits (MRLs) to set allowed maximum levels for drugs residues in animal products have been established worldwide1-3.

As regulations became more stringent with respect to MRLs, the need to develop qualitative methods as well as confirmation and identification techniques becomes important in order to minimize false positives. Time of flight mass spectrometry (ToF MS) screening has gained popularity due to benefits such as historical data interrogation, simplified instrumental method set-up and reduced compromise in method performance when increasing the number of compounds contained in the method. However, processing and reviewing TOF screening data is often a complex workflow where positive peaks are first identified then quantified to assess the risk posed to the consumer. Frequently the transfer from qualitative to quantitative processes is performed manually, which places a significant drain on data review resource and introduces a high probability for errors.

The use of ACQUITY UPLC® coupled to quadrupole time of flight (Xevo QToF® MS) for the semi-targeted screening of more than 150 multiclass veterinary drug residues and metabolites in milk, liver, blood, fish and meat will be discussed. The data was processed using POSITIVE software, enabling exact mass data to be qualitatively and quantitatively reviewed in a single pass, by going straight to the important quantitative results for positively detected components. The use of product ions from MS² acquisition to add extra confidence when assigning the identity of a peak of interest will also be investigated.

References

Keywords: Screening, Veterinary drugs, TOF

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