

## **Comprehensive screening and quantification of veterinary drugs in milk by turbulent flow chromatography and tandem mass spectrometry (TFC-MS/MS)**

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Recently analytical procedures are described in literature using Turbulent Flow Chromatography (TFC) in combination with MS/MS for the direct analysis of residues of veterinary drugs in biological samples. This approach was applied to the analysis of residues of multi-class antibiotics in milk. The advantage of TFC is the drastic reduction of sample preparation time when comparing with the normal offline sample preparation methods. TFC exploits the difference between large and small molecules and column chemistry to retain compounds of interest while matrix molecules flow to waste. Albendazole, difloxacin, oxytetracycline, phenylbutazone, salinomycin, spiramycin, sulfamethazine and tetracycline in milk were isolated, detected and quantified by TFC-ESI-MS/MS. Even without internal standards, quantitative results proved to be linear in the concentration range of 5 to 500 µg/L as well as reproducible and precise (RSD 0.4-14 %). The limits of detection were between 0.1 and 5.2 µg/L. At the 100 µg/L level, the matrix effect was minimal for salinomycine Na, spiramycin, tetracycline, oxytetracycline and sulphametazine.