

SPONGE SPRAY DIRECT IONISATION FROM MITRA MICROSAMPLING DEVICES

Max Hecht¹, Hanno Evard¹, Koit Herodes¹, Karin Kipper^{1,2}

¹*Institute of Chemistry, University of Tartu, Ravila 14a, 50411 Tartu, Estonia*

²*Paediatric Infectious Diseases Research Group, Institute for Infection and Immunity, St. George's, University of London, Cranmer Terrace, London, SW17 0RE, United Kingdom*

e-mail: hecht@ut.ee

Microsampling for the home application and clinical studies has evolved beyond dried blood spots (DBS). Neoteryx® Mitra microsampling devices are sponge like tips able to take up fixed amount (such as 10 µL or 20 µL) of sample. They have been found to overcome the hematocrit issue of DBSs and give reproducible results for drug assays [1]–[3]. These devices have now been successfully subjected to direct ambient ionization of antimicrobials.

By in-house modification of an Agilent APCI-source, a rudimentary direct spray ambient ionization source was built, using the corona needle as a high voltage source. Analysis was carried out on Agilent MSD Trap XCT (Agilent Technologies, Santa-Clara, CA, USA). Eluent is supplied by a syringe pump to the tip, via a PEEK capillary. The eluent consist of 50/50/0,1 % methanol/water/formic acid.

A linear dependence of concentration vs signal in standard solution could be confirmed. Calibration was achieved over 3 orders of magnitude for Penicillin G standard solution from 0.5 µg/mL to 100 µg/mL.

The analysis of dried blood/plasma as well as immediate analysis of wet samples are planned. This combines the advantages of volumetric blood microsampling and direct analysis of the sample via ambient mass spectrometry and reduce analysis time by omitting sample preparation.

References

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