

Programmable flow-based dynamic sorptive microextraction exploiting an octadecyl chemically modified rotating disk extraction system for the determination of acidic drugs in urine

Manzo, Valentina

Miró, Manuel

Richter, Pablo

© 2014 Elsevier B.V. A novel automatic sorptive microextraction approach combining sequential injection-based programmable flow with rotating disk sorptive extraction (RDSE) is proposed for the clean-up and concentration of low polarity organic species in urine samples. Non-steroidal anti-inflammatory drugs (NSAIDs), namely, ketoprofen, naproxen, diclofenac and ibuprofen, were selected as model analytes in a proof-of-concept design, and they were further determined by liquid chromatographic (LC) assays. The extracting phase consisted of octadecyl (C18) chemically bonded silica embedded in a polytetrafluoroethylene (PTFE) substrate. The thin film was immobilized onto the surface of an in-house prepared rotating PTFE disk in a dedicated flow-through chamber. The programmable flow-based microextraction method operates under kinetic principles and features software-controlled sample loading and dynamic sorptive unidirectional-flow microextraction for as little as 10min, followed by matrix