

**DETERMINATION OF SULFONAMIDES AND ITS METABOLITES IN
SOLID MATRICES USING PRESSURIZED LIQUID EXTRACTION AND
LIQUID CHROMATOGRAPHY-QUADRUPOLE LINEAR ION TRAP-MASS
SPECTROMETRY**

M^a Jesús García-Galán^{*1}, M. Silvia Díaz-Cruz¹, Damià Barceló^{1,2}

¹Dept. Environmental Chemistry, IIQAB-CSIC, c/ Jordi Girona 18-26, E-08034 Barcelona, Spain.

Tel.: 34 93 4006100, Fax: 34 93 2045904, *e-mail: mggqam@cid.csic.es

²Catalan Institute for Water Research (ICRA), Parc Científic i Tecnològic de la Universitat de Girona,
c/ Pic de Peguera 15, E-17003 Girona, Spain.

The occurrence of antimicrobials in the environment has become a subject of major concern among scientists due to the potential spread and maintenance of bacterial resistance [1]. Amongst them, the family of sulfonamides are one of the most widely used in human and especially in veterinary medicine. Sulfonamides are of special interest due also to their high excretion rate[2] and persistence in the environment. Other reasons for greater occurrence may be due to their relatively low elimination efficiency during sewage treatment procedures [3] and to the increase in the number of confined animal feeding operations, which often lack proper waste management practices. Furthermore, the extensive use of manure as fertilizer in agriculture can be a significative source of contamination of surface and ground waters by these compounds.

The present work describes a selective and highly sensitive analytical method based on pressurised liquid extraction followed by solid phase extraction and liquid chromatography-tandem mass spectrometry (SPE-LC-MS/MS) for the determination of sulfonamides and metabolites in solid matrices. MS/MS detection was carried out in a quadrupole-linear ion trap (QqLIT) mass analyzer. Target compounds were unequivocally identified in the selected reaction monitoring (SRM) mode by recording two transitions between precursor ions and the two most abundant product ions. The sampling points were selected due to their proximity to agricultural and farming areas and also to the main cities located along the basin, considered as potential “hot spots” for these substances. This setting allowed us for an initial screening for surface waters in order to assess the occurrence of the target compounds

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References

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