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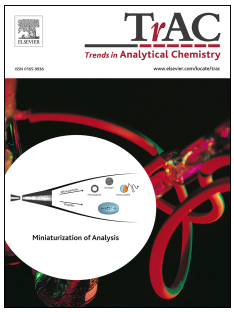

Screening and risk management solutions for steroidal estrogens in surface and wastewater

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Abstract (shortened)

In 2015, the European Commission included three steroidal estrogens in the so-called “watch list” of the EU WFD. Monitoring these compounds is challenging, however, because analytical detection limits are often too high to monitor the proposed environmental quality criteria. To test the suitability of alternative effect-based methods for monitoring steroidal estrogens, water samples were collected across Europe and analysed using five *in vitro* effect-based and three chemical analytical methods. Steroidal estrogen concentrations were below analytical detection limits in < 40% of samples, while effect-based methods were able to quantify estrogenicity in all samples. Results of a chemical mixture risk assessment correlated highly with effect-based estrogenic activities. We conclude that the application of effect-based methods for WFD surface water monitoring allows the sensitive detection of steroidal estrogens and estrogen mixtures, and allows an ecotoxicological risk assessment using appropriate effect-based trigger values.