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OCCURRENCE of SYNTHETIC MUSKS in the AQUATIC ENVIRONMENT of the LOIRE-BRETAGNE BASIN

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Synthetic musks are perfuming agents which are widely used in consumer products such as personal care items and household cleaners. Nowadays, in Europe, polycyclic musks like galaxolide (HHCB) and tonalide (AHTN) are being used extensively. Products consumed in high volumes such as synthetic musks are continuously discharged via sewers into treatment plants where they are not completely eliminated. They reach the rest of the aquatic environment, increasing then concerns about their potential human and wildlife health risks. The presence of musk xylene (MX) in water was first reported in Japan (*Yamagishi et al. 1981*), then occurrence in Europe in water and fish was first reported in 1994 by *Eschke (2004)*. Since there is no occurrence data about musks in France, this study intended to investigate the presence of synthetic musks in surface water from the Loire-Bretagne basin. A liquid liquid extraction method was applied to extract nitro musks (musk xylene and musk ketone) and polycyclic musks (AHTN, HHCB, phantolide (AHMI), traseolide (ATII), and celestolide (ADBI)) from water sample; analysis was performed by gas chromatography mass spectrometry. The quantification limit was 30 ng.l^{-}1 for each analyte. The recoveries ranged from 76 to 92 % in spiked deionised water. Analysis of 59 water samples from the Loire-Bretagne basin revealed the presence of HHCB and AHTN in most of the samples. None of the other synthetic musks was detected. This can confirm the steps taken in recent years in Europe on the restriction of nitro musks (MX and MK) for the benefit of polycyclic musks (HHCB and AHTN) in the formulation of personal care products (*Reiner et al., 2007*). HHCB values are higher than concentrations of AHTN, this reflects the higher utilisation of HHCB compared to AHTN in Europe (*Dsikowitzky et al., 2002*). Concentrations of AHTN and HHCB observed in this French study are comparable to those found in previously in Europe.

acknowledgements - References

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