Occurrence of synthetic musks in the aquatic environment of the Loire-Bretagne basin

Laurence Amalric, Noura Meklat

To cite this version:
Laurence Amalric, Noura Meklat. Occurrence of synthetic musks in the aquatic environment of the Loire-Bretagne basin. EuChems International Conference on Chemistry and the Environment (ICCE 2011), Sep 2011, Zurich, Switzerland. hal-00606244

HAL Id: hal-00606244
https://hal-brgm.archives-ouvertes.fr/hal-00606244
Submitted on 5 Jul 2011

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.
OCCURRENCE of SYNTHETIC MUSKS in the AQUATIC ENVIRONMENT of the LOIRE-BRETAGNE BASIN

Laurence AMALRIC\textsuperscript{a}, and N. Meklat

\textsuperscript{a} BRGM /France (Institute/Department, University, Country)

l.amalric@brgm.fr

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\textsuperscript{-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
We acknowledge the Carnot project for his financial support and the Loire-Bretagne agency for the samples.


