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## Thin film microextraction of VOCs from biological samples using PDMS/ZSM-5 hybrid adsorbents

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Thin film microextraction (TFME) approach recently aroused in the scientific literature as one of the alternative to the solid phase microextraction (SPME) based on the fiber geometry. Generally, in theory, not different from SPME, TFME possesses several important advantages. Since the amount of analytes extracted in SPME is proportional to the volume of the extraction phase, the sensitivity of a method can be improved by increasing the volume of the extraction phase. In general, this extraction approach exhibits much higher extraction rates than SPME fiber due to the higher surface area to extraction phase volume of the thin film. In this technique, scientists used a thin sheet of PDMS membrane attached to a deactivated stainless steel rod like a flag.

In current research, we investigated a class of hybrid materials of zeolite and polydimethylsiloxane. Such hybrid materials have been previously reported for several tasks, in particular, selective filtration due to size exclusion mechanism. However, these composites were not thoroughly studied for the chemicals sorption, retention and controlled release purposes. They not only possess longer retention of targeted analytes due to size-fitting on the zeolite pores but also can be used for enhanced preconcentration and selectivity over conventional PDMS as a solid extraction phase. More detailed results will be presented at the conference.

### Biography

Seung-Woo Lee obtained his PhD degree in Chemistry and Biochemistry from Kyushu University, Japan, in 1999. He is now a Professor of the Graduate School of Environmental Engineering of the University of Kitakyushu, Japan. His current scientific interests include organic/inorganic nanohybrids, molecular imprinting using metal oxide thin films, and GC-MS analysis and chemical sensing of biological compounds.

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