SOL-GEL-BASED SERS SUBSTRATES FOR THE DETECTION OF PROPIONIC ACID

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Surface-enhanced Raman Scattering (SERS), using silver, gold, or other noble metals as substrate, compared with the traditional Raman technique, is a powerful in-situ technique for trace analysis in the environment. One of the important applications of SERS is the trace analysis in sea water. To understand the complex SERS spectra measured in sea water, there is a need to investigate the SERS spectra of possible chemicals in sea water. Short-chain fatty acids may be one of the members of these chemicals. These acids are metabolite of bacteria at the ocean floor. In this work, the SERS spectra of propionic acid and the interaction of propionic acid with a sol-gel embedded silver colloid SERS-substrate are investigated. Additionally the dependence of the SERS signal on the concentrations of propionic acid in water dilution is determined.