

# Optimization of sample treatment for the identification of anthraquinone dyes by surface-enhanced Raman spectroscopy

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© 2017, Springer-Verlag Berlin Heidelberg. The study and characterization of old artifacts such as pigments requires the use of techniques that need a small amount of sample to perform the analysis because of the high value of these samples. In recent years, organic molecules such as anthraquinone dyes have been identified by surface-enhanced Raman spectroscopy (SERS). However, different sample treatments must be applied to isolate the organic dye from the mordant, which produces great fluorescence in the Raman measurements. In this work, optimization of sample treatment for the SERS analysis of anthraquinone dyes was performed. Sample mass, the organic solvent, and its volume were optimized and different slide materials and excitation lasers were compared to choose the best conditions for the identification of the dyes. The optimization of sample treatment resulted in 5 mg of sample as the optimum amount. Further, two consecutive extractions with 0.5 mL of ethyl acetate was the best o