Abstract in english:

Drop coating deposition Raman spectroscopy is a special method of Raman spectroscopy based on a deposition of a small volume of solution or suspension on a special substrate with hydrophobic properties. The drop dries on this substrate and forms a deposit from which a Raman spectrum of good quality can be accumulated. This is possible in case of the small volume of deposited drop (several μl) and low initial concentration (μM) as well. The main goal of this thesis is to find the limits of this method for detection of several contaminants (melamine, picloram, thiram, bentazone) using two commercial substrates (SpectRIM™, μ-RIM™) for study of aqueous solutions, and one non-commercial for study of ethanol solutions. Spectra accumulated on commercial substrates were generally of higher quality and therefore the detection limits were lower. Between the two commercial substrates, SpectRIM™ proved to be a more suitable choice due to the fact that contaminants were better concentrated on this substrate. The obtained detection limits were compared with the limits of these substances for surface enhanced Raman spectroscopy. Although the same limits were not reached, all substrates showed great potential for the detection of substances at very low concentrations.