# STRUCTUAL AND MORPHOLOGICAL STUDIES OF LACTIC ACID BASED BIODEGRADABLE MODIFIED POLYMER PACKAGING MATERIALS

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## ABSTRACT

During our research, we modified biodegradable PLA samples with acetic anhydride at room temperature. The modified, as well as the untreated samples were being interacted with different food products. Some of our samples were prepared via the mechanical pressing of PLA granules. Since the surface of the samples had not become homogeneous during this aforementioned process, we used prefabricated PLA covers later on. Vibration spectroscopy is capable of analyzing the chemical composition of different substances and is a widely used method in quality control, hence the structural changes in the polymer samples were monitored with Raman-spectroscopy. The material composition analysis has been complemented by atomic force microscopy (AFM), during which we obtained morphological information about the surface of the samples in a $10^{-9}$ m spatial resolution. Since AFM is suitable for the measurement of elasticity, we gained knowledge about the mechanical nature of the investigated samples as well.

*Keywords: PLA,Vibration spectroscopy, Food products*