

Synchrotron-Based UV Resonance Raman for DNA Structure Stabilization

A group of Physicists and Chemists from Italy are using CERIC-ERIC Consortium for studying conformational stability of DNA. Their research investigates ionic liquids as next generation solvents to stabilize the double-helix structure of DNA. They use synchrotron-based UV Resonance Raman (UVR) spectroscopy with the aim of clarifying the role played by concentration of ionic liquids (IL) in stabilizing the natural conformation of DNA. UVR spectroscopy has been powerful tool to researchers in the field of protein structural analysis. This technique is able to selectively enhancement the vibrations mainly localized on nucleotide rings, when in resonance conditions, thereby minimizing interference associated with phosphates and sugar backbone. UVR measurements allowed them to enhance specific vibrational signals associated to nitrogenous bases of DNA, through an appropriate tuning of the excitation wavelength which was possible using our tunable band pass filter Trivista 557 spectrograph. The radiation power on the sample was ~20 W. Any possible photo-damage effect due to a prolonged exposure of the sample to UV radiation was avoided by continuously spinning the sample cell during measurements.

Featured Paper/Publication: [Conformational stability of DNA in hydrated ionic liquids by synchrotron-based UV resonance Raman](#), Proc. of SPIE Vol. 11086, 2019

Reference Lab: [Bottari C. et al](#), University of Trieste, Italy

Featured Product: [Trivista 557](#)