

Abstract: Therapies of neurodegenerative diseases are often very difficult and their success depend on an early diagnose. From that reason we have been developing new diagnostic method for multiple sclerosis and Alzheimer disease by drop coating deposition Raman (DCDR) spectroscopy of cerebrospinal fluid (CSF) in this work. We found out conditions of measurements, where spectra were reproducible and accepted for standard diagnostic practices. We discovered that CSF has fast degradation at a room temperature, which was detectable in spectra after 5 hours, and degradation due to refreezing. DCDR spectra of CSF from individual patients were analyzed by factor and cluster analysis. Multiple sclerosis was manifested by lower intensity of a Raman band at 1080 cm^{-1} , which is probably connected with more general pathologic state. Spectral changes caused by Alzheimer disease were more complex and beside changes mentioned above also changes connected with composition and conformation of proteins were identified in regions $1200\text{--}1800\text{ cm}^{-1}$ and $2870\text{--}2950\text{ cm}^{-1}$. Additionally, we succeeded in distinguishing of young healthy patients from older patients in DCDR spectra. In this work were checked up, that DCDR is good diagnostic method for clinical practices for determining neurodegenerative diseases through the complex analysis of CSF.