ACTION SPECTROSCOPY OF STORED BIOMOLECULAR IONS IN THE SOFT X-RAY RANGE

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Inner shell action spectroscopy of multiply protonated protein ions formed by electrospray has been systematically studied as a function of the charge state. The experiment has been performed by coupling a commercial linear quadrupole ion trap ("Thermo scientific LTQ XL"), fitted with an electrospray ion source (ESI), to the PLEIADES beamline at the SOLEIL facility, France [1]. The series of charge states that could be formed by ESI for the ubiquitin and cytochrome *c* protein have been studied around the C-, N- and O-edges. Surprisingly, we observe no effect in our experimental conditions of the charge state on the position of the single photoionization spectra, related to resonant K-shell excitation. In contrast, the ionization yields derived from the double ionization of the target, exhibit a trend very similar to that observed under VUV experiments [2]. The present experiment offers an exciting possibility to probe the correlation between the physicochemical properties of an isolated gas-phase protein and its secondary structure.

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