PRELIMINARY STUDY OF CHEMICAL SPECIATION OF SULPHUR IN CANCEROUS TISSUES

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Sulphur is an essential element in biological samples, yet its biochemistry is only partially understood, because so few tools such as XANES may be used to determine its chemical speciation in biological system [1].

In this paper we focused on analysis of composition and elemental distribution (by SRIXE) in tissue structures of biological samples. We examined cancerous and non-cancerous prostate tissues. Successful determination of elemental concentration was very important for latter XANES measurements. A better understanding of the functionality of sulphur by the study of the spatial distribution, chemical properties and its surrounding in different kind of prostate tissues is very important and may give the answer to the questions which protein are involved in cancer process.

Our experiments were carried out on the L-beam line at the HASYLAB, DESY (Hamburg, Germany) and DRX1 at the LNF, (Frascati, Italy).

SRIXE measurements reveal the significant differences in concentration of sulphur between cancerous and non-cancerous tissues. XANES spectra show two main types of sulphur with X-ray peaks at 2,476, and 2,482 keV, respectively. This suggest that different sulphur components are present in the measured samples.

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