

Serum Elemental Analysis of Type 2 Diabetes Patients using SRXRF

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Keywords: Elemental concentrations, Diabetes Mellitus, SRXRF

A total number of 158 serum samples of newly diagnosed type 2 diabetes patients as well as control subjects were analyzed using Synchrotron Radiation X-ray Fluorescence (SRXRF) technique. Elements K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Br, Rb, Sr, and Pb were identified and their relative concentrations were estimated. The current experiment was carried out by using microprobe XRF beam line -16 of Indus-2 synchrotron radiation facility at Raja Ramanna Centre for Advanced Technology (RRCAT), Indore, India. Mean levels of K, Ca, Ti, Cr, Mn, Ni, Zn, and As decreased whereas, the levels of V, Fe, Co, Cu, Se, and Pb increased statistically in the serum samples of type 2 diabetes patients when compared to the control subjects. The observed variations in the levels of elements are in consonance with other similar studies and suggest that these alterations might have caused disturbance in the glucose homeostasis and insulin resistance.

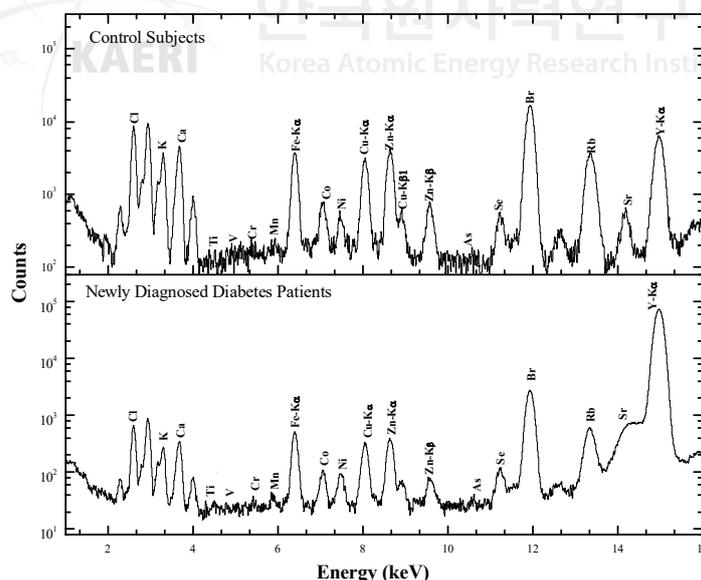


Fig. 1. X-ray emission spectra of serum samples of control subjects and type 2 diabetes patients using SRXRF

Acknowledgements

The authors thank the authorities and staff of Indus-2 synchrotron radiation utilization facility at Raja Ramanna Centre for Advanced Technology (RRCAT), Indore, India. One of the authors P. Sarita, thankful to UGC-DAE Consortium for Scientific Research, Indore Centre, Govt. of India for sanctioning project (CSR-IC-BL-60/CRS-177/2016-17/841 date 28th Oct., 2016) to carry out this work.

