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Heteronuclear Single–Quantum Correlation Spectroscopy (HSQC) and Heteronuclear Multiple–Bond Correlation Spectroscopy (HMBC) Comparative Study on Malignant and Benign Human Cancer Cells, Tissues and Tumors under Synchrotron and Synchrocyclotron Radiations

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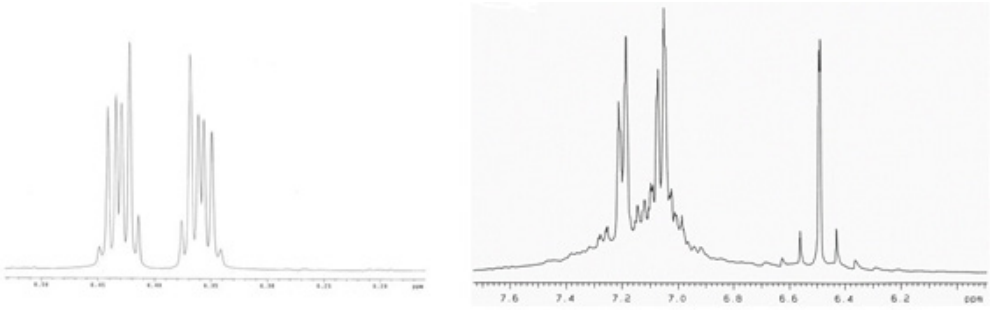
In the current study, we have experimentally and comparatively investigated and compared malignant human cancer cells, tissues and tumors before and after irradiating of synchrotron and synchrocyclotron radiations using Heteronuclear Single–Quantum Correlation Spectroscopy (HSQC) and Heteronuclear Multiple–Bond Correlation Spectroscopy (HMBC). It is clear that malignant human cancer cells, tissues and tumors have gradually transformed to benign human cancer cells, tissues and tumors under synchrotron and synchrocyclotron radiations with the passage of time using cyclotron versus synchrotron, synchrocyclotron and the Large Hadron Collider (LHC) for delivery of proton and Helium ion (charged particle) beams for oncology radiotherapy (Figures 1 and 2) [1–153].



(A) (B)

Figure 1: *Heteronuclear Single–Quantum Correlation Spectroscopy (HSQC) analysis of malignant human cancer cells, tissues and tumors using cyclotron versus synchrotron, synchrocyclotron and the Large Hadron Collider (LHC) for delivery of proton and Helium ion (charged particle) beams for oncology radiotherapy.*
(a) Before and
(b) After irradiating of synchrotron and Synchrocyclotron radiations in transformation process to benign human cancer cells, tissues and tumors with the passage of time [1–153].

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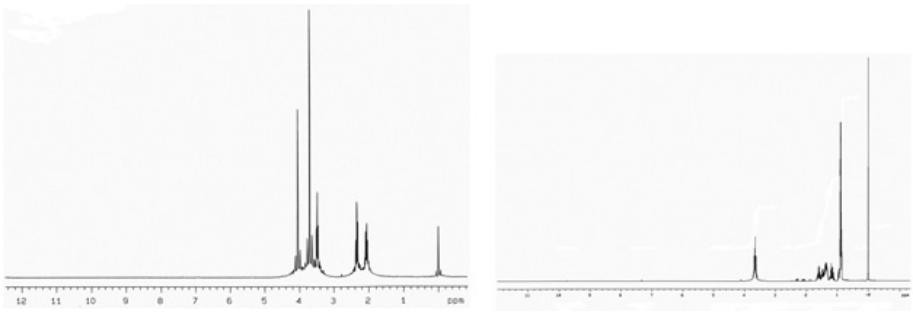

(A) (B)

Figure 2: *Heteronuclear Multiple–Bond Correlation Spectroscopy (HMBC) analysis of malignant human cancer cells, tissues and tumors using cyclotron versus synchrotron, synchrocyclotron and the Large Hadron Collider (LHC) for delivery of proton and Helium ion (charged particle) beams for oncology radiotherapy.*
(a) Before and
(b) After irradiating of synchrotron and synchrocyclotron radiations in transformation process to benign human cancer cells, tissues and tumors with the passage of time [1–153].

It can be concluded that malignant human cancer cells, tissues and tumors have gradually transformed to benign human cancer cells, tissues and tumors under synchrotron and synchrocyclotron radiations with the passage of time using cyclotron versus synchrotron, synchrocyclotron and the Large Hadron Collider (LHC) for delivery of proton and Helium ion (charged particle) beams for oncology radiotherapy (Figures 1 and 2) [1–153].

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