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Vibrational Decahertz (daHz), Hectohertz (hHz), Kilohertz (kHz), Megahertz (MHz), Gigahertz (GHz), Terahertz (THz), Petahertz (PHz), Exahertz (EHz), Zettahertz (ZHz) and Yottahertz (YHz) Imaging and Spectroscopy Comparative Study on Malignant and Benign Human Cancer Cells and Tissues under Synchrotron Radiation

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Article Info

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Image Article

In the current study, we have experimentally and computationally presented vibrational decahertz (daHz), hectohertz (hHz), kilohertz (kHz), Megahertz (MHz), Gigahertz (GHz), Terahertz (THz), Petahertz (PHz), Exahertz (EHz), Zettahertz (ZHz) and Yottahertz (YHz) imaging and spectroscopy comparative study on malignant and benign human cancer cells and tissues with the passing of time under synchrotron radiation using Mathematica [1-101]. In this regard, first, we have experimentally investigated and compared malignant human cancer cells and tissues before and after irradiating of synchrotron radiation using vibrational decahertz (daHz), hectohertz (hHz), kilohertz (kHz), Megahertz (MHz), Gigahertz (GHz), Terahertz (THz), Petahertz (PHz), Exahertz (EHz), Zettahertz (ZHz) and Yottahertz (YHz) imaging and spectroscopy. It is clear that malignant human cancer cells and tissues have gradually transformed to benign human cancer cells and tissues under synchrotron radiation with the passing of time (Figure 1) [1-101].

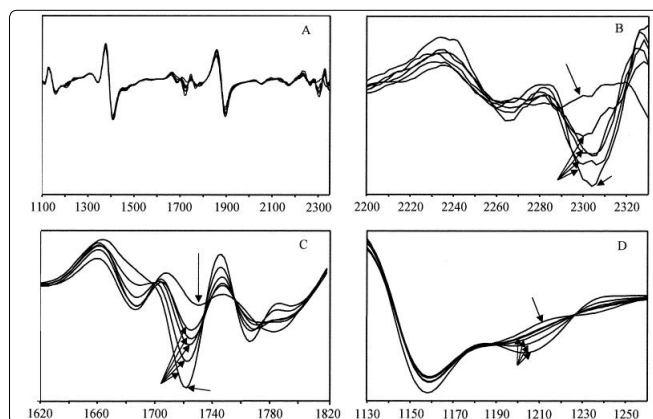


Figure 1. Vibrational decahertz (daHz), hectohertz (hHz), kilohertz (kHz), Megahertz (MHz), Gigahertz (GHz), Terahertz (THz), Petahertz (PHz), Exahertz (EHz), Zettahertz (ZHz) and Yottahertz (YHz) spectra of malignant human cancer cells and tissues (a) before irradiating of synchrotron radiation, after (b) 10 days, (c) 20 days and (d) 30 days irradiating of synchrotron radiation [1-101].

Furthermore, we have computationally simulated this transformation process according to the passing of time as mentioned above for human cancer cells and tissues (Figures 2 and 3) and also distribution of human cancer cells and tissues (Figures 4 and 5) under synchrotron radiation using Mathematica, respectively [1-101].

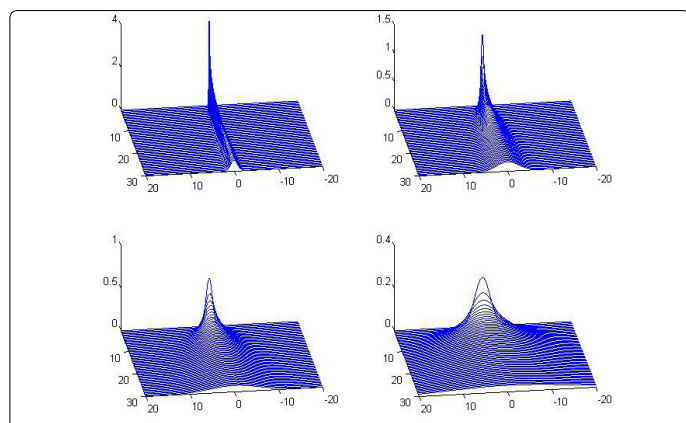


Figure 2. Simulation of transformation process of malignant human cancer cells to benign human cancer cells under synchrotron radiation with the passing of time using Mathematica [1-101].

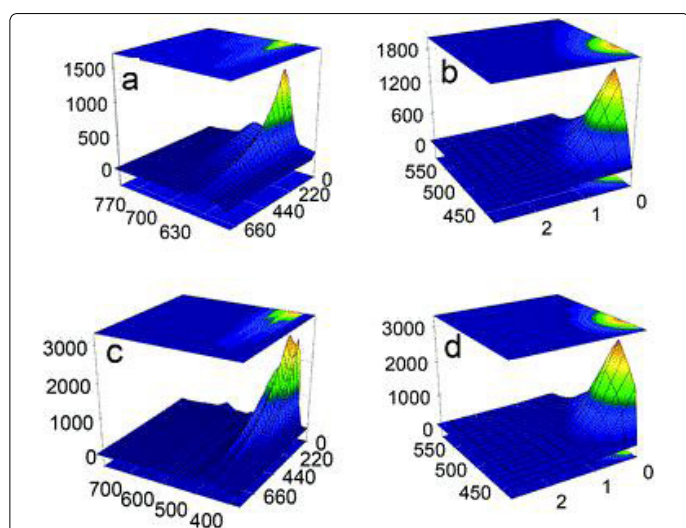


Figure 3. Simulation of transformation process of malignant human cancer tissues to benign human cancer tissues under synchrotron radiation with the passing of time using Mathematica [1-101].

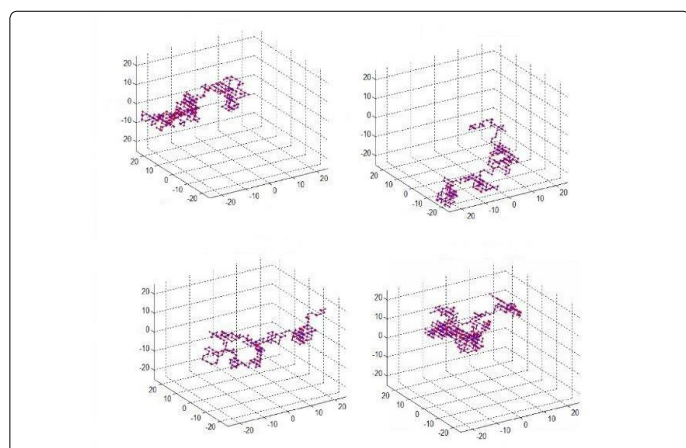


Figure 4. Simulation of transformation process of malignant human cancer cells to benign human cancer cells under synchrotron radiation according to the distribution of human cancer cells using Mathematica [1-101].

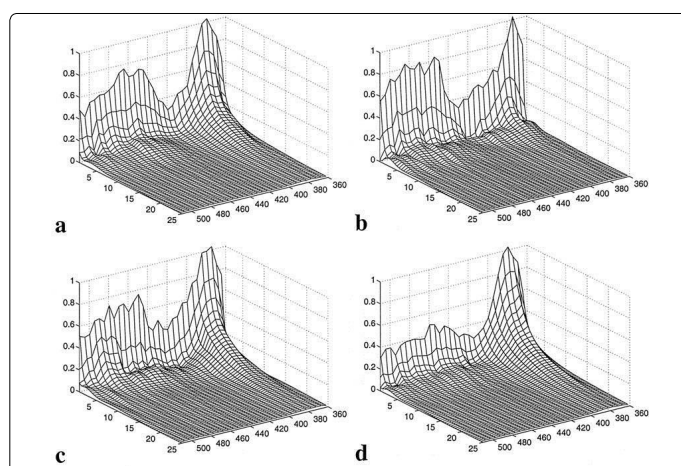


Figure 5. Simulation of transformation process of malignant human cancer tissues to benign human cancer tissues under synchrotron radiation according to the distribution of human cancer tissues using Mathematica [1-101].

In addition, we have comparatively studied vibrational decahertz (daHz), hectohertz (hHz), kilohertz (kHz), Megahertz (MHz), Gigahertz (GHz), Terahertz (THz), Petahertz (PHz), Exahertz (EHZ), Zettahertz (ZHz) and Yottahertz (YHz) spectra of malignant and benign human cancer cells and tissues under synchrotron radiation with the passing of time as mentioned before on one coordinate system, respectively (Figures 6 and 7) [1-101].

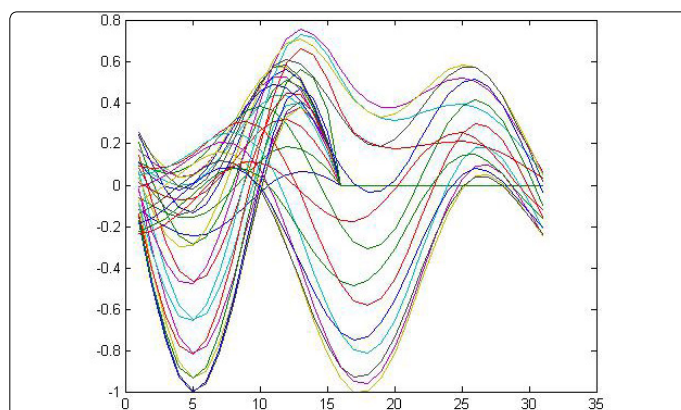


Figure 6. Vibrational decahertz (daHz), hectohertz (hHz), kilohertz (kHz), Megahertz (MHz),

Gigahertz (GHz), Terahertz (THz), Petahertz (PHz), Exahertz (EHZ), Zettahertz (ZHz) and Yottahertz (YHz) spectra of malignant and benign human cancer cells under synchrotron radiation with the passing of time on one coordinate system [1-101].

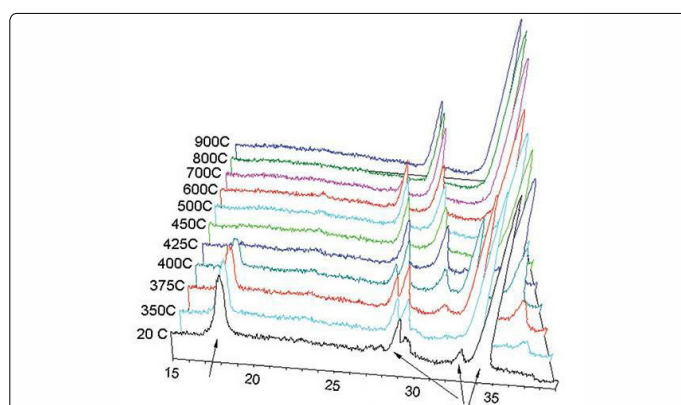


Figure 7. Vibrational decahertz (daHz), hectohertz (hHz), kilohertz (kHz), Megahertz (MHz),

Gigahertz (GHz), Terahertz (THz), Petahertz (PHz), Exahertz (EHz), Zettahertz (ZH) and Yottahertz (YHz) spectra of malignant and benign human cancer tissues under synchrotron radiation with the passing of time on one coordinate system [1-101].

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