

Two-dimensional (2D) ^1H or proton NMR, ^{13}C NMR, ^{15}N NMR and ^{31}P NMR spectroscopy comparative study on malignant and benign human cancer cells and tissues under synchrotron radiation with the passage of time

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In the current study, we have experimentally and comparatively investigated and compared malignant human cancer cells and tissues before and after irradiating of synchrotron radiation using Two-Dimensional (2D) ^1H or Proton NMR, ^{13}C NMR, ^{15}N NMR and ^{31}P NMR 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 passage of time (Figures 1-4) [1-198].

It can be concluded that malignant human cancer cells and tissues have gradually transformed to benign human cancer cells and tissues under synchrotron radiation with the passage of time (Figures 1-4) [1-198].

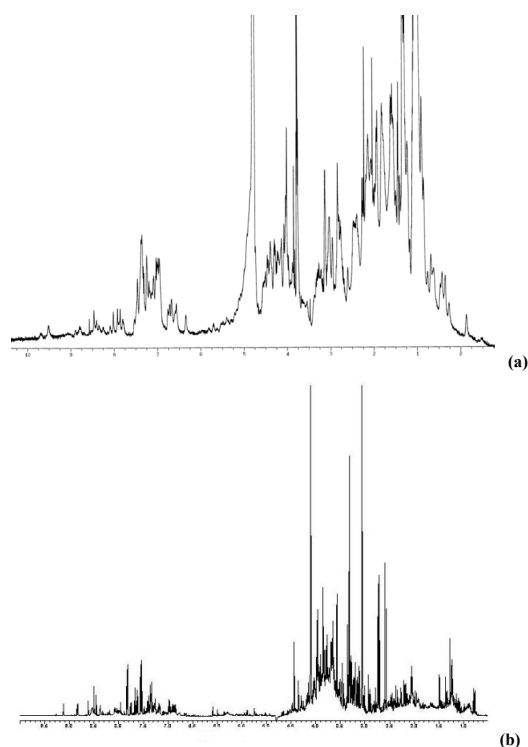


Figure 1. Two-Dimensional (2D) ^1H or Proton NMR spectroscopy analysis of malignant human cancer cells and tissues (a) before and (b) after irradiating of synchrotron radiation in transformation process to benign human cancer cells and tissues with the passage of time [1-198]

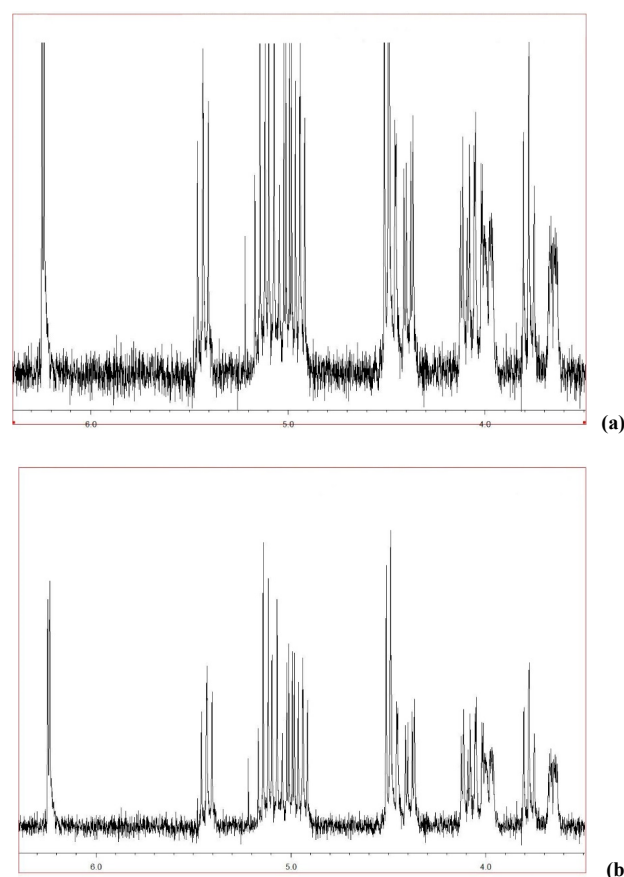


Figure 2. Two-Dimensional (2D) ^{13}C NMR spectroscopy analysis of malignant human cancer cells and tissues (a) before and (b) after irradiating of synchrotron radiation in transformation process to benign human cancer cells and tissues with the passage of time [1-198]

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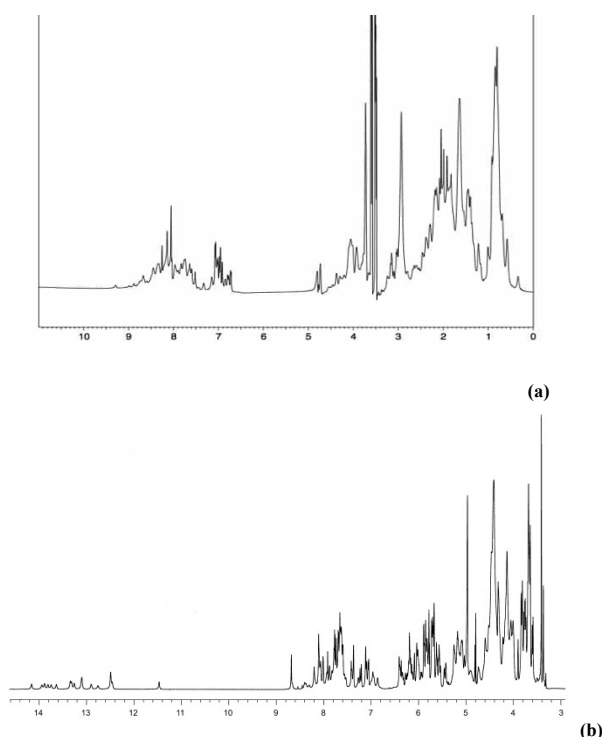


Figure 3. Two-Dimensional (2D) ^{15}N NMR spectroscopy analysis of malignant human cancer cells and tissues (a) before and (b) after irradiating of synchrotron radiation in transformation process to benign human cancer cells and tissues with the passage of time [1-198]

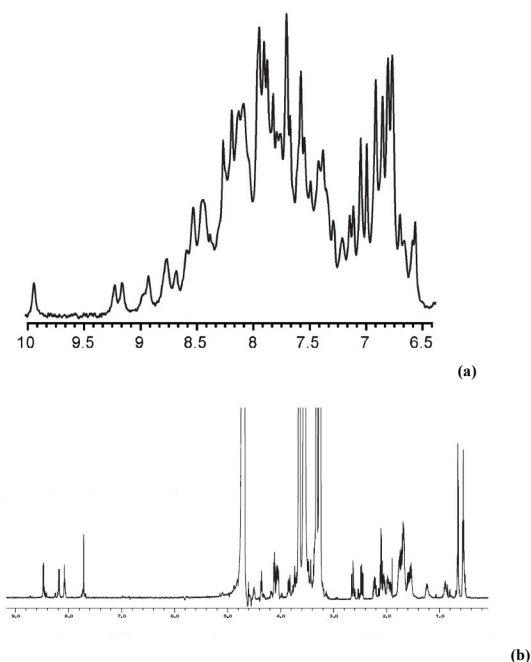


Figure 4. Two-Dimensional (2D) ^{31}P NMR spectroscopy analysis of malignant human cancer cells and tissues (a) before and (b) after irradiating of synchrotron radiation in transformation process to benign human cancer cells and tissues with the passage of time [1-198]

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