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Theoretical ^{13}C chemical shift, ^{14}N, and ^{2}H quadrupole coupling–constant studies of hydrogen bonding for measurement and calculation of ^{13}C and ^{15}N NMR chemical–shift tensors in DNA/RNA of gum cancer cells identification: A powerful alternative

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Abstract

It cannot be denied that NMR biospectroscopy has several advantages that attribute to this technique a great potential towards viral diagnostic routines. This technique cannot be overlooked, and must be considered a possible alternative for theoretical ^{13}C chemical shift, ^{14}N, and ^{2}H quadrupole coupling–constant studies of hydrogen bonding for measurement and calculation of ^{13}C and ^{15}N NMR chemical–shift tensors in DNA/RNA of gum cancer cells identification. Several people die every day for lack of a quick, reliable and relatively inexpensive diagnosis. In conjunction with NMR biospectroscopic analysis, multivariate data analysis provides powerful support for interpretation and pattern recognition. Finally, NMR biospectroscopy approaches combined with multivariate analysis provide a powerful weapon in studies for development of rapid diagnostics, which can be extended to several cancers of different types and strains.

Introduction

As has been seen, theoretical ^{13}C chemical shift, ^{14}N, and ^{2}H quadrupole coupling–constant studies of hydrogen bonding for measurement and calculation of ^{13}C and ^{15}N NMR chemical–shift tensors in DNA/RNA of gum cancer cells identification that are used nowadays are a double–edged sword, where advantages and disadvantages are mutually observed. Direct methods are more specific, however, they take time and are more expensive. Indirect methods are faster and cheaper but are less specific. Based on this assessment, theoretical ^{13}C chemical shift, ^{14}N, and ^{2}H quadrupole coupling–constant studies of hydrogen bonding for measurement and calculation of ^{13}C and ^{15}N NMR chemical–shift tensors in DNA/RNA of gum cancer cells identification emerges as a tool with the potential to solve the deficiencies found by standard techniques. Theoretical ^{13}C chemical shift, ^{14}N, and ^{2}H quadrupole coupling–constant studies of hydrogen bonding for measurement and calculation of ^{13}C and ^{15}N NMR chemical–shift tensors in DNA/RNA of gum cancer cells identification is known to have a fast response and provide reliable information about the sample composition and has been used in several oncological applications for screening or diagnosis of gum cancer cells [1-10].

Results and discussion

Knowing that theoretical ^{13}C chemical shift, ^{14}N, and ^{2}H quadrupole coupling–constant studies of hydrogen bonding for measurement and calculation of ^{13}C and ^{15}N NMR chemical–shift tensors in DNA/RNA of gum cancer cells identification is fast, non–destructive and has a low–cost, we can imagine that, with new studies developed in this area, soon we can count with NMR biospectroscopic tools in clinics and hospitals, being used for routine diagnostic or acting as a reliable diagnostic aiding tool. For this, only a minimal amount of collected bio fluid would be needed. Spectral acquisition of this bio fluid would be done by an instrument coupled to a computer where this spectral information would be automatically imported into software that would perform all computational procedures in real time (pre–processing and multivariate classification), based on a theoretical ^{13}C chemical shift, ^{14}N, and ^{2}H quadrupole coupling–constant studies of hydrogen bonding for measurement and calculation of ^{13}C and ^{15}N NMR chemical–shift tensors in DNA/RNA of gum cancer cells identification (Figure 1).

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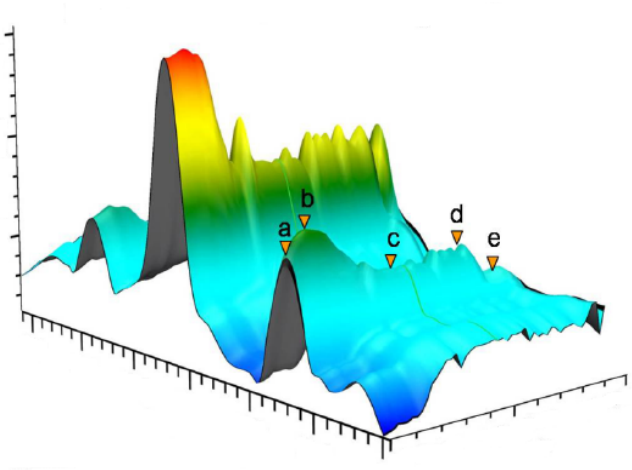

Figure 1. Simulation of ^{13}C chemical shift, ^{14}N, and ^{2}H quadrupole coupling–constant studies of hydrogen bonding for measurement and calculation of ^{13}C and ^{15}N NMR chemical–shift tensors in DNA/RNA of gum cancer cells identification

Conclusion

NMR biospectroscopic techniques are based on the interaction between electromagnetic radiation with the sample. This interaction can provide valuable information from the sample compositional point of view. Theoretical ^{13}C chemical shift, ^{14}N, and ^{2}H quadrupole coupling–constant studies of hydrogen bonding for measurement and calculation of ^{13}C and ^{15}N NMR chemical–shift tensors in DNA/RNA of gum cancer cells identification is one of the most well–known biospectroscopic techniques. In biological samples, the range between 1800 to 900 cm^{-1} is known as the biofingerprint region because it has a high density of information regarding important biomolecules. The field of study where NMR biospectroscopic tools are used to analyze biological samples has become known as biospectroscopy and has been widely used in chemometric approaches involving the identification of bacteria, viruses, cancer diagnosis, forensic entomology, among others.

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