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Determination of infrared, Raman, (^{1}H and ^{13}C)-NMR and density of state of nateglinide oral anti-diabetic drug

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Diabetes is a defect in the body's ability to convert excess glucose to glycogen. Two classes of anti-diabetic drugs were identified and Nateglinide is a sub-division of oral anti-diabetic drugs belonging to Meglitinides family. Gaussian 09 code which use density function theory as working principle was used to study the geometric, infrared, Raman, ^{1}H-NMR, ^{13}C-MNR spectrum and density of state of the Nateglinide anti-diabetic drug using exchange functional B3LYP/6-311G. For the geometry optimization, it was observed that, there is appearance of a new additional bond between C_{12} and N_{4} which changes the natural nature of both ^{1}H-NMR and ^{13}C-NMR spectra. For infrared and Raman spectra, functional groups and polarizability were observed. However, the result of density of state shows the large band gap of 5.46758eV and most of the orbitals were occupied at lower valance band.

Biography

Mansur Sa'id is a Researcher in Nanoscience especially in biotechnology, nanomedicine, molecular design and structure. He is currently working as an Academic Staff at Yusuf Maitama Sule University Kano, Nigeria.

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