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Solvent Free Synthesis of (*E*)-4-Benzylidene-3-Methylisoxazol-5(4*H*)-Ones and their Cytotoxic Screening against MCF7 Cell Line

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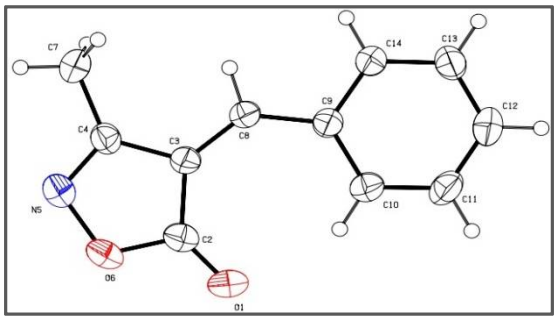
ABSTRACT

*A novel, green and efficient solvent free methods such as autoclave and microwave assisted reaction has been designed for the synthesis of (E)-4-benzylidene-3-methylisoxazol-5(4H)-one derivatives. This path emerged with many advantages such as curtailed reaction time, easy isolation of products, increased yields and eco-friendly reaction conditions. Presently, seven isoxazole derivatives were tailored by blending various benzaldehyde derivatives with ethyl acetoacetate and the new molecules were characterized by spectroscopic analysis such as IR, ^{1}H NMR, ^{13}C NMR and elemental analysis. The newly synthesized compounds were screened for their breast cancer activity against MCF7 cell line. The compounds **4(a-g)** have shown moderate activity.*

Graphical Abstract



ORTEP diagram of the molecule **4a** with 50% probability displacement ellipsoids.

Keywords: Autoclave/Microwave reaction, aromatic aldehyde, ethyl acetoacetate, $NH_2OH.HCl$, anhydrous$ZnCl_2$.