



Supporting Information

Potent Alkaline Phosphatase Inhibitors, Pyrazolo-Oxothiazolidines: Synthesis, Biological Evaluation, Molecular Docking, and Kinetic Studies

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Supporting Figure captions:

Fig. S1: IR Spectrum of 7a

Fig. S2: ¹H NMR Spectrum of 7a

Fig. S3: ¹³C NMR Spectrum of 7a

Fig. S4: IR Spectrum of 7b

Fig. S5: ¹H NMR Spectrum of 7b

Fig. S6: ¹³C NMR Spectrum of 7b

Fig. S7: IR Spectrum of 7c

Fig. S8: ¹H NMR Spectrum of 7c

Fig. S9: ¹³C NMR Spectrum of 7c

Fig. S10: IR Spectrum of 7d

Fig. S11: ¹H NMR Spectrum of 7d

Fig. S12: ¹³C NMR Spectrum of 7d

Fig. S13: IR Spectrum of 7e

Fig. S14: ¹H NMR Spectrum of 7e

Fig. S15: ¹³C NMR Spectrum of 7e

Fig. S16: IR Spectrum of 7f

Fig. S17: ^1H NMR Spectrum of 7f

Fig. S18: ^{13}C NMR Spectrum of 7f

Fig. S19: IR Spectrum of 7g

Fig. S20: ^1H NMR Spectrum of 7g

Fig. S21: ^{13}C NMR Spectrum of 7g

Fig. S22: IR Spectrum of 7h

Fig. S23: ^1H NMR Spectrum of 7h

Fig. S24: ^{13}C NMR Spectrum of 7h

Fig. S25: IR Spectrum of 7i

Fig. S26: ^1H NMR Spectrum of 7i

Fig. S27: ^{13}C NMR Spectrum of 7i

Fig. S28: IR Spectrum of 7j

Fig. S29: ^1H NMR Spectrum of 7j

Fig. S30: ^{13}C NMR Spectrum of 7j

Fig. S31: IR Spectrum of 7k

Fig. S32: ^1H NMR Spectrum of 7k

Fig. S33: ^{13}C NMR Spectrum of 7k

Fig. S34: IR Spectrum of 7l

Fig. S35: ^1H NMR Spectrum of 7l

Fig. S36: ^{13}C NMR Spectrum of 7l

Fig. S37: IR Spectrum of 7m

Fig. S38: ^1H NMR Spectrum of 7m

Fig. S39: ^{13}C NMR Spectrum of 7m

Fig. S40: IR Spectrum of 7n

Fig. S41: ^1H NMR Spectrum of 7n

Fig. S42: ^{13}C NMR Spectrum of 7n

Fig. S43: 2D-docking depiction of 7a complex against alkaline phosphatase

Fig. S44: 2D-docking depiction of 7b complex against alkaline phosphatase

Fig. S45: 2D-docking depiction of 7c complex against alkaline phosphatase

Fig. S46: 2D-docking depiction of 7d complex against alkaline phosphatase

Fig. S47: 2D-docking depiction of 7e complex against alkaline phosphatase

Fig. S48: 2D-docking depiction of 7f complex against alkaline phosphatase

Fig. S49: 2D-docking depiction of 7g complex against alkaline phosphatase

Fig. S50: 2D-docking depiction of 7h complex against alkaline phosphatase

Fig. S51: 2D-docking depiction of 7i complex against alkaline phosphatase

Fig. S52: 2D-docking depiction of 7j complex against alkaline phosphatase

Fig. S53: 2D-docking depiction of 7k complex against alkaline phosphatase

Fig. S54: 2D-docking depiction of 7l complex against alkaline phosphatase

Fig. S55: 2D-docking depiction of 7m complex against alkaline phosphatase

Fig. S56: 2D-docking depiction of 7n complex against alkaline phosphatase

The detection of signals originating from common contaminants during routine NMR use presents a challenge (water, solvents, stabilizers, oils). Grease (silicon grease) is a typical contaminant used in glassware joints. Grease peaks in CDCl_3 as a solvent can be found at δ 0.07, 0.08, and 1.26 ppm in ^1H NMR and at δ 1.04 and 29.76 ppm in ^{13}C NMR ¹.

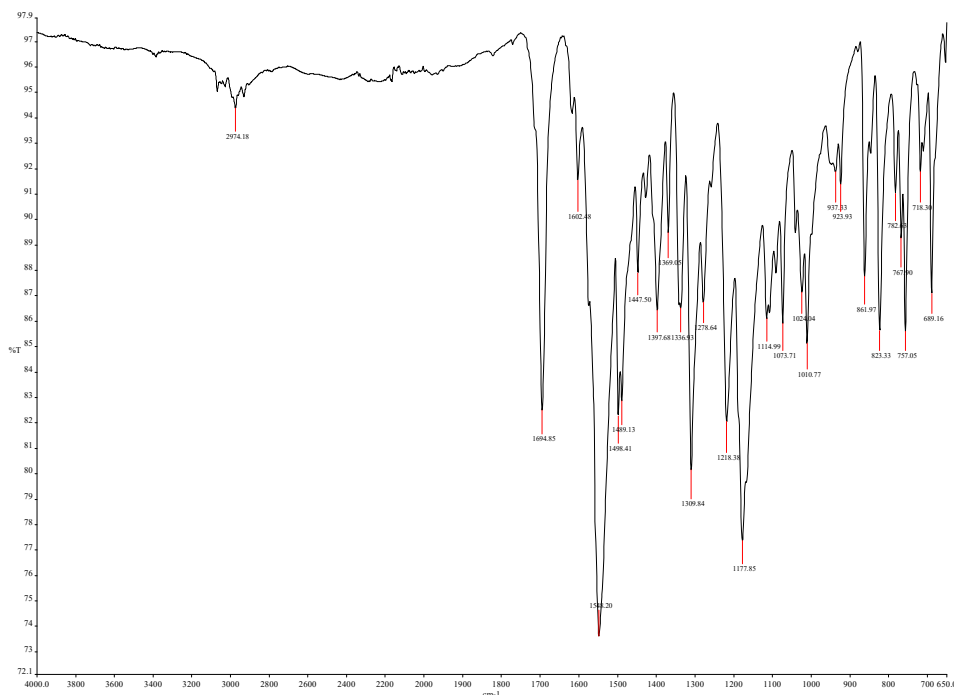


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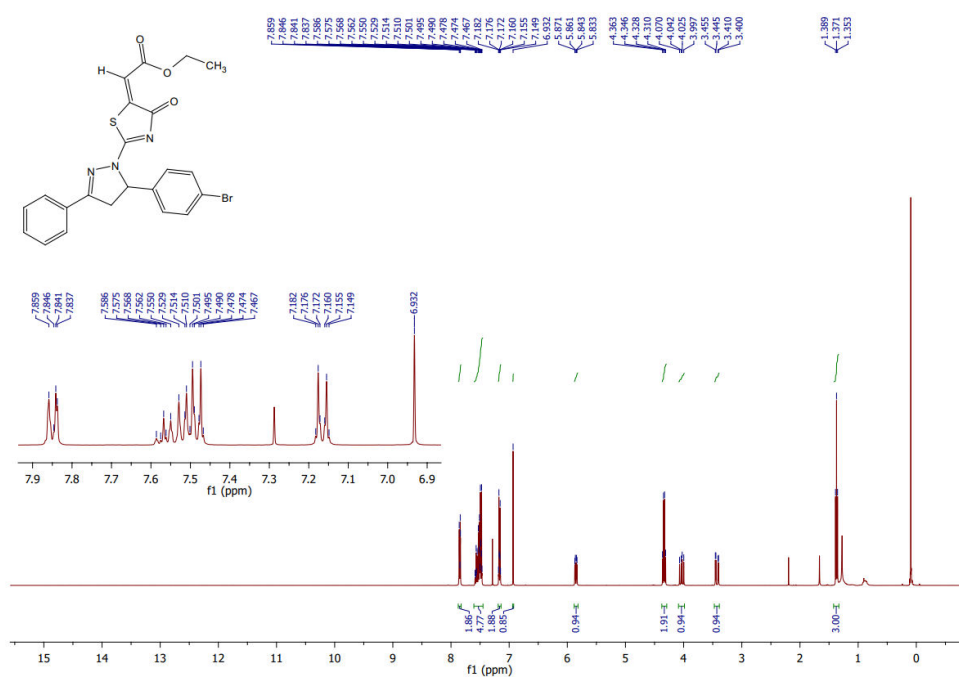


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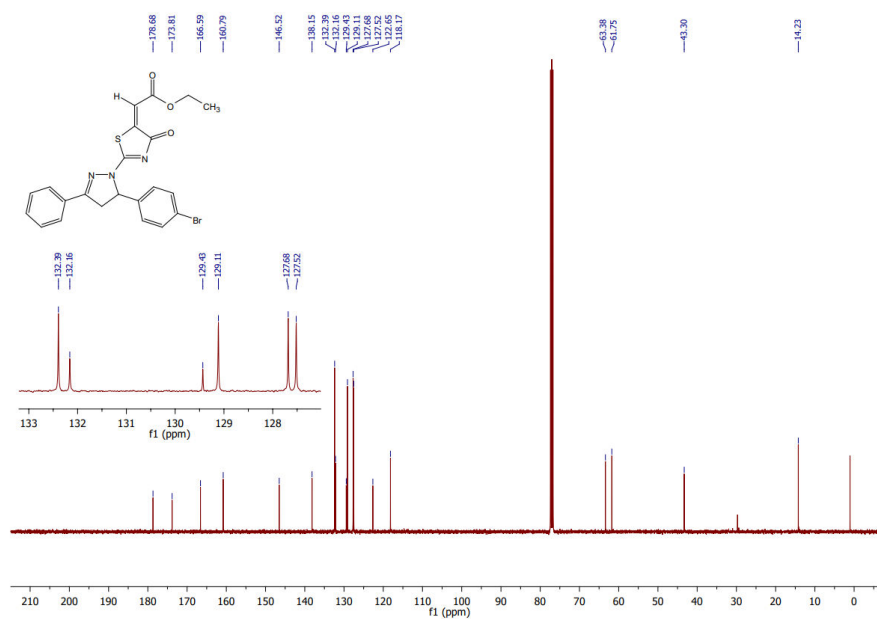


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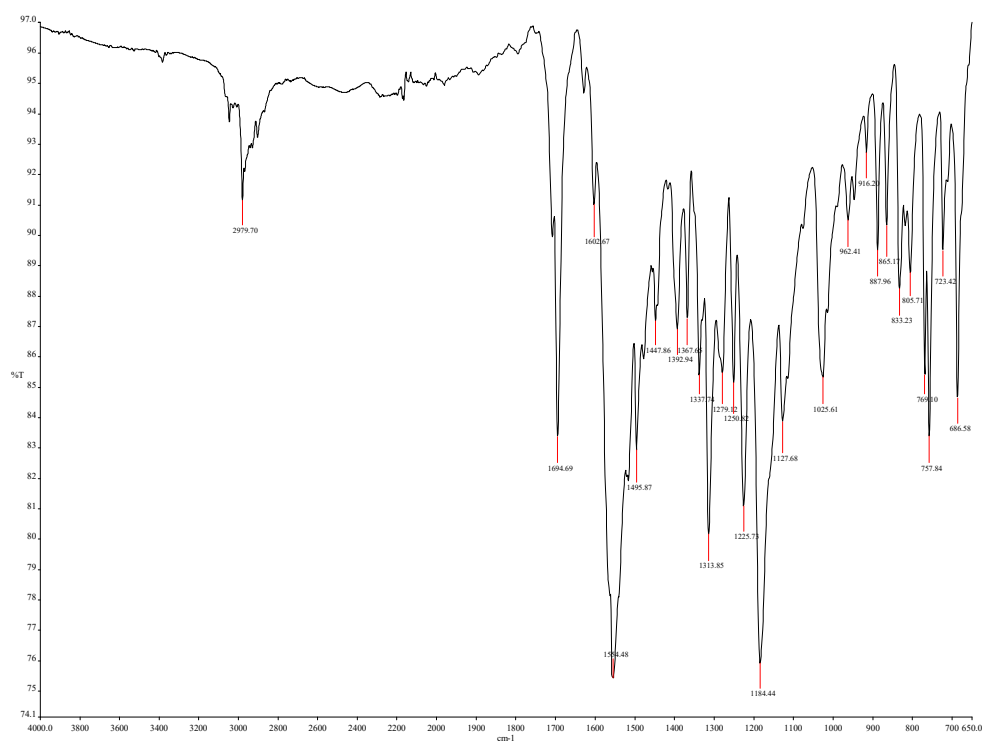


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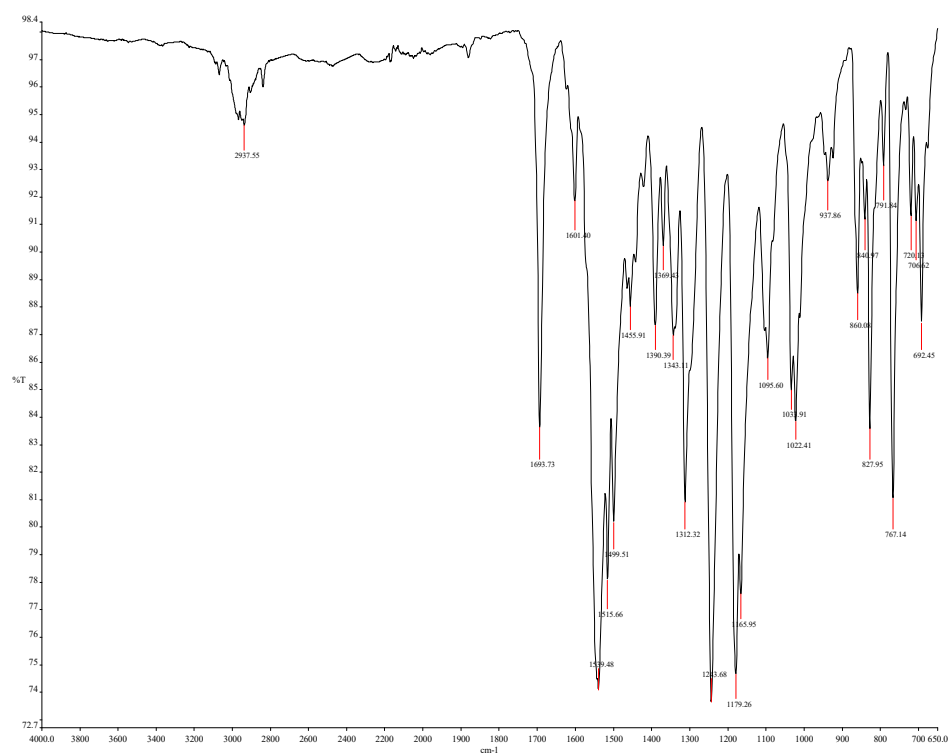


Fig. S7, ES‡

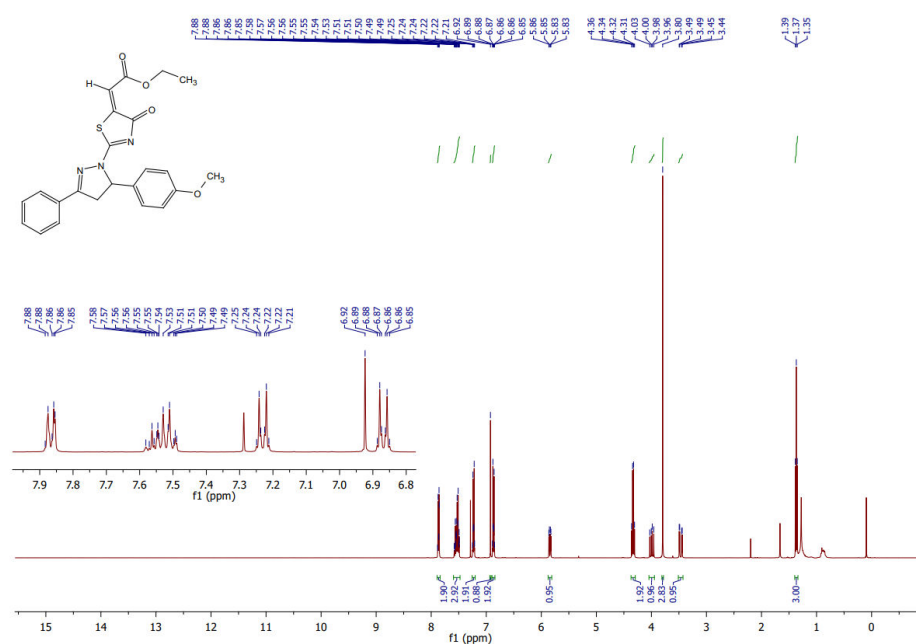


Fig. S8, ES‡

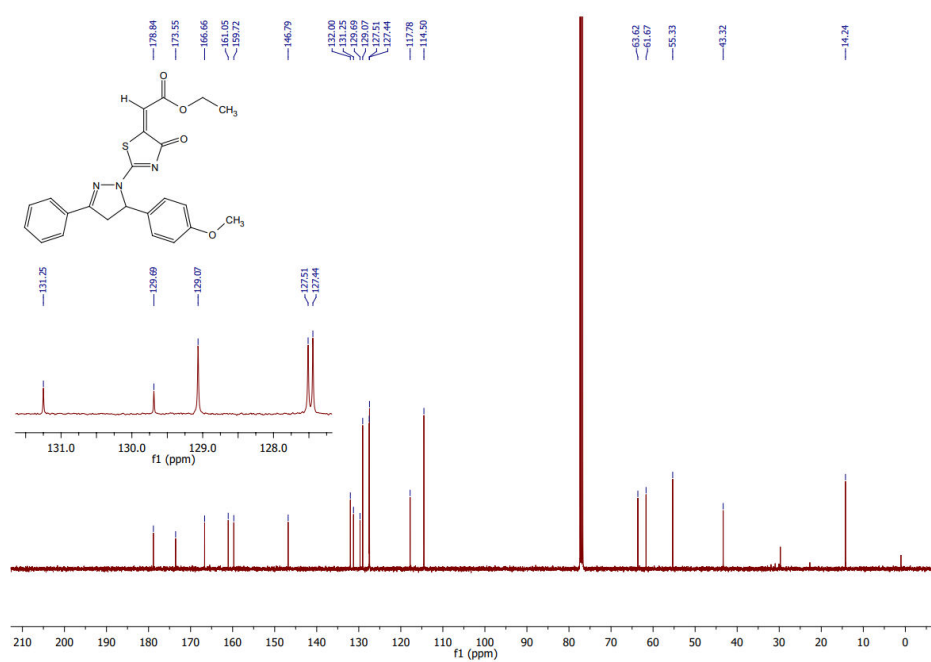


Fig. S9, ES†

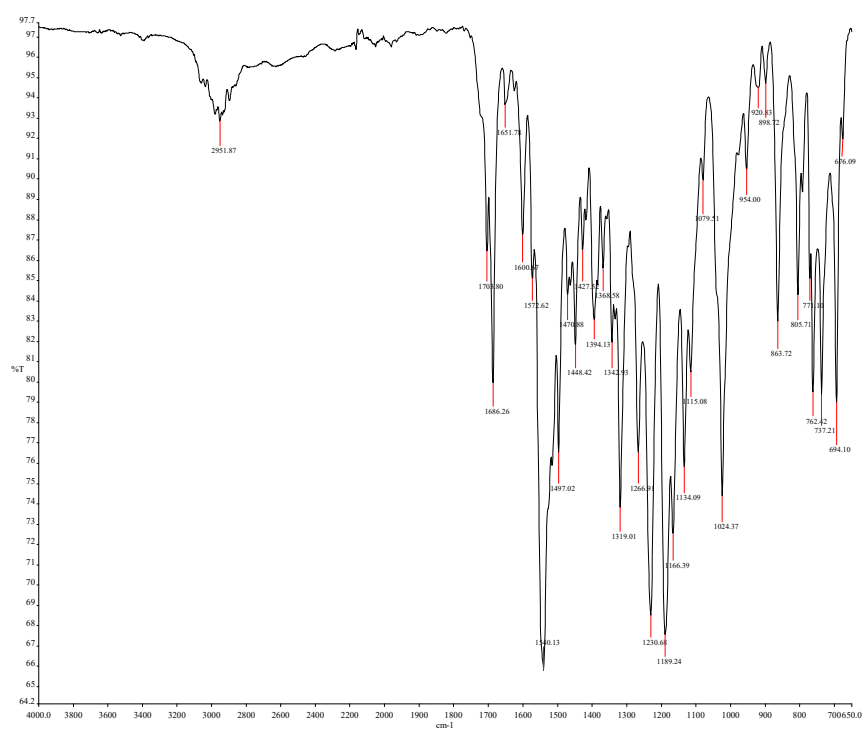
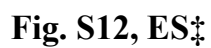
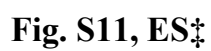


Fig. S10, ES†



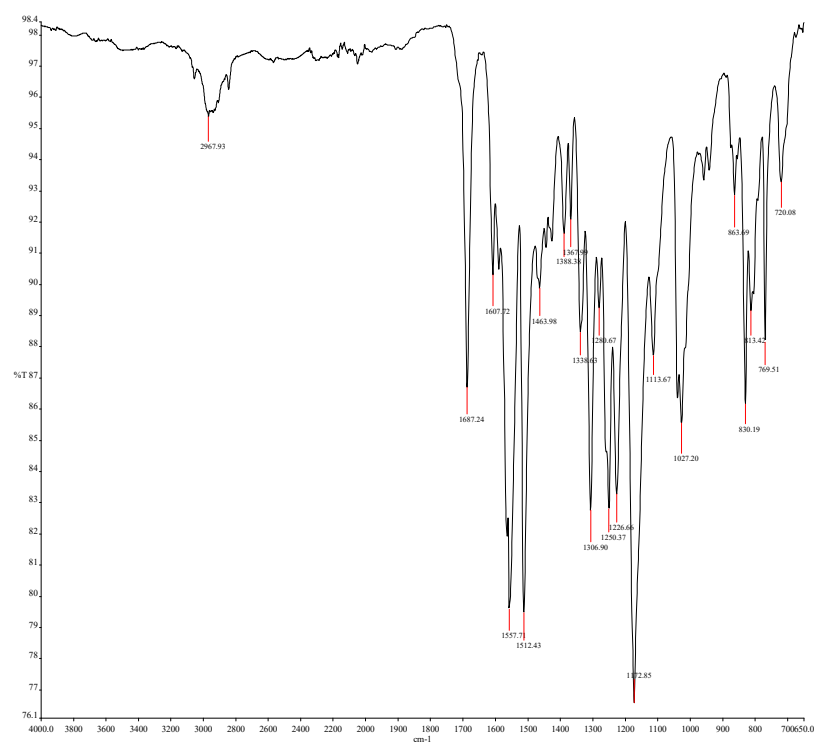


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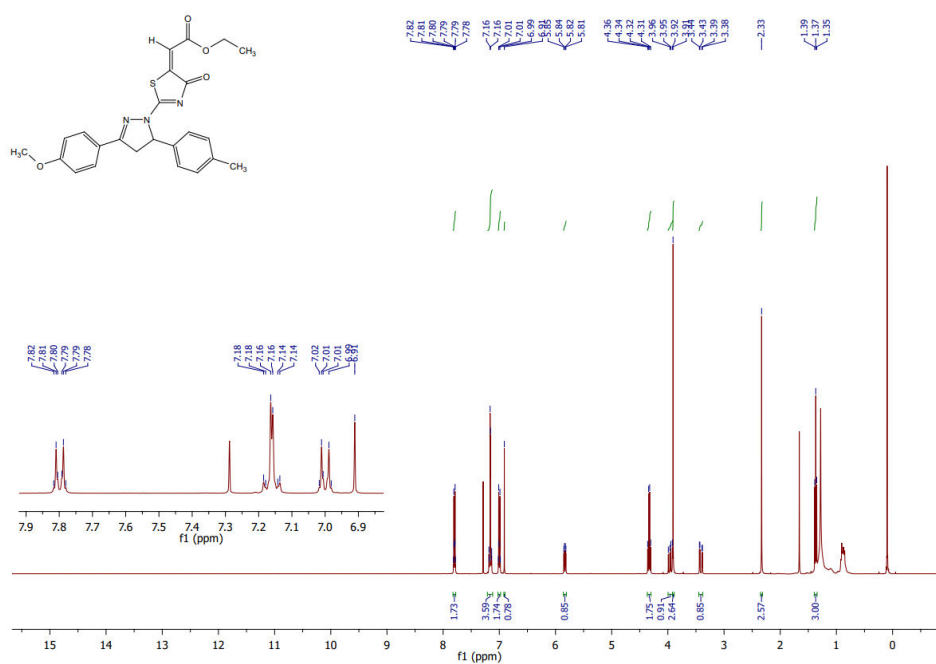


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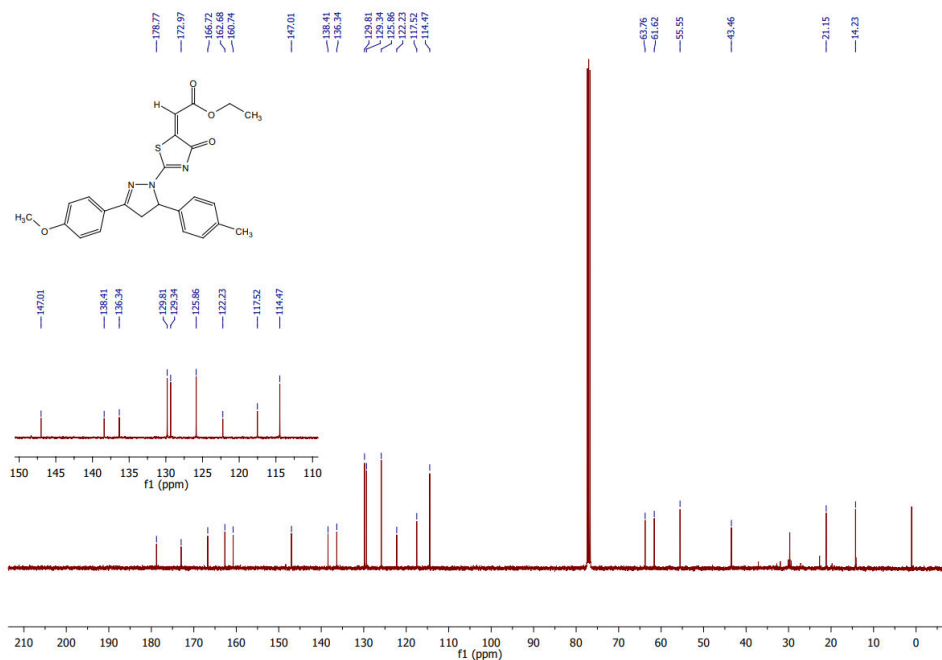


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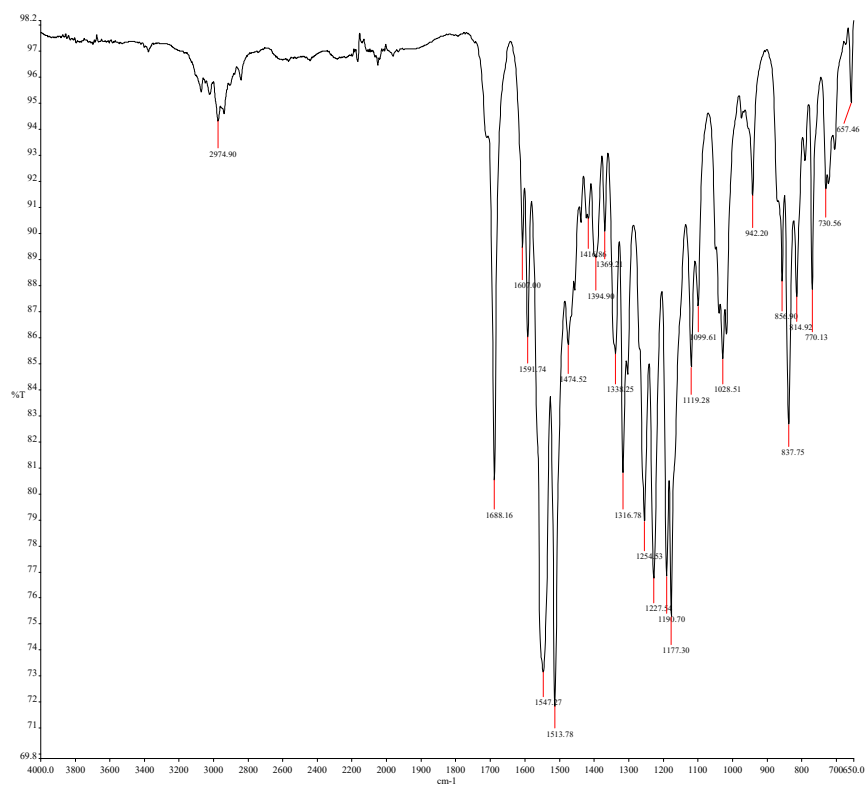


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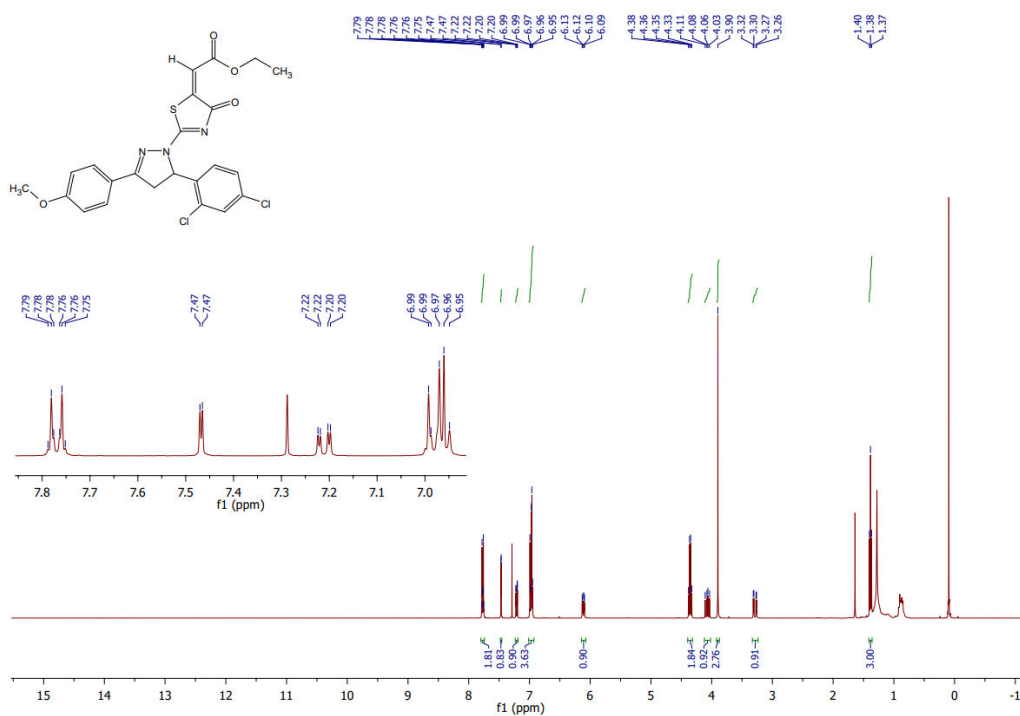


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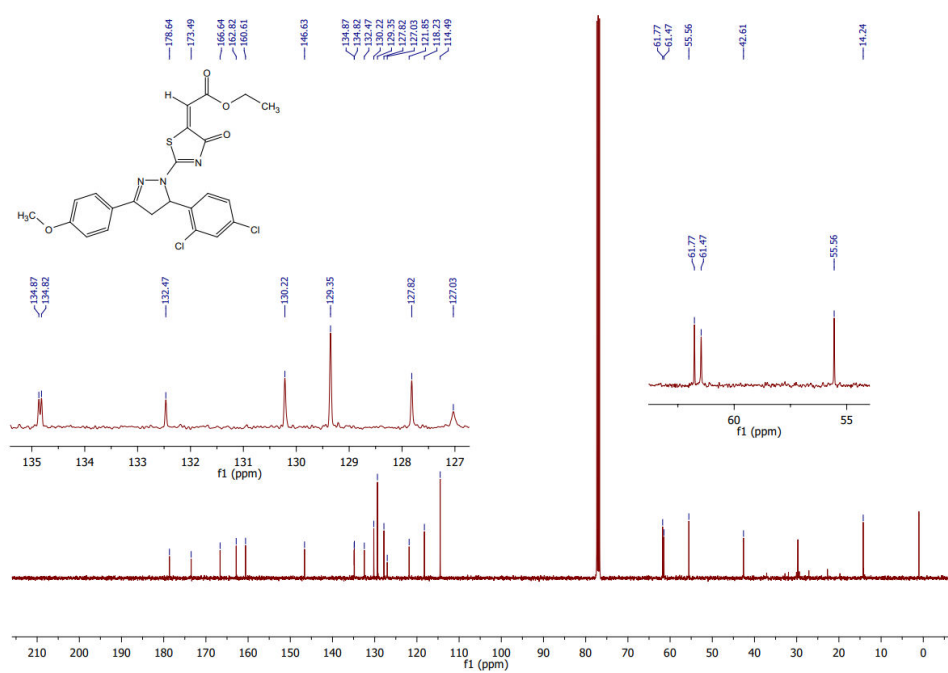


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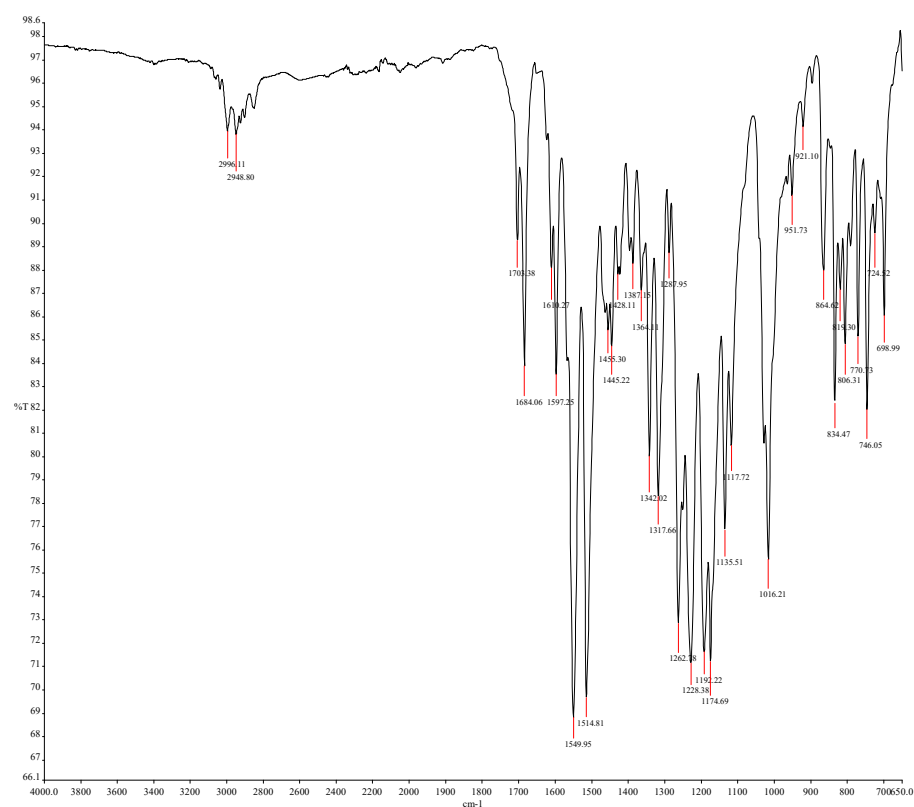


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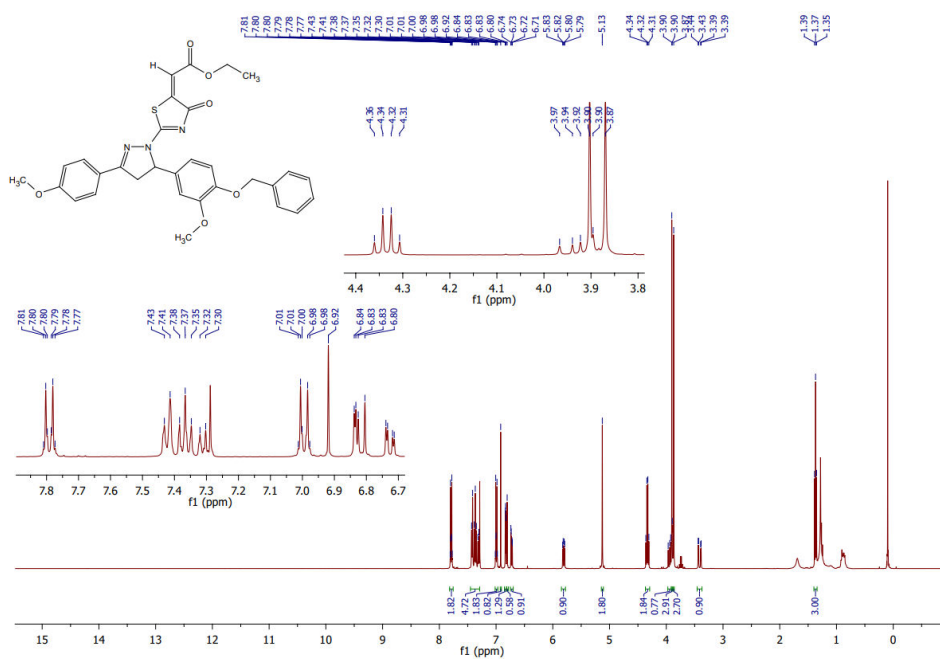


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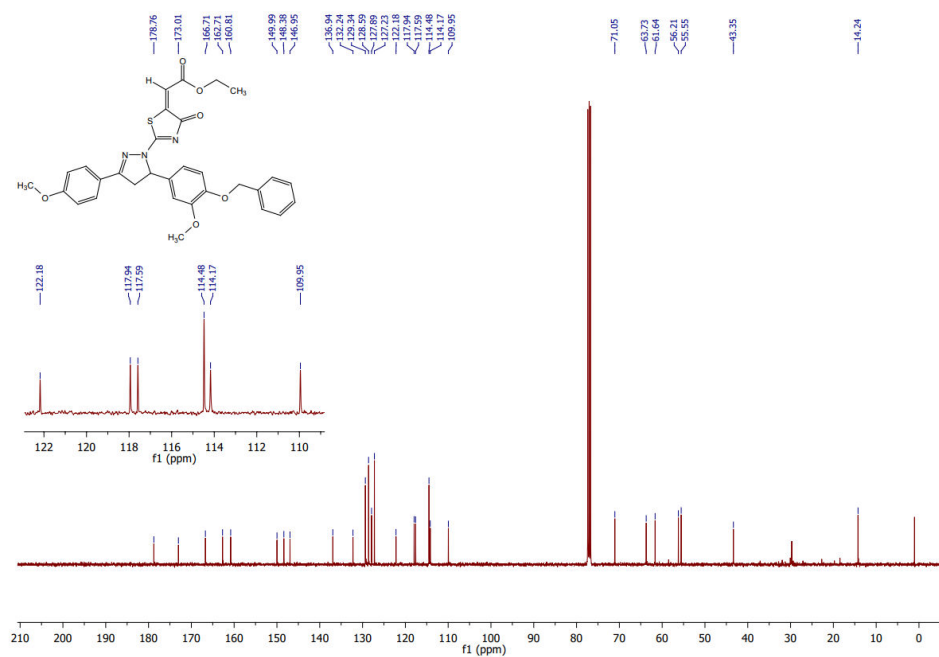


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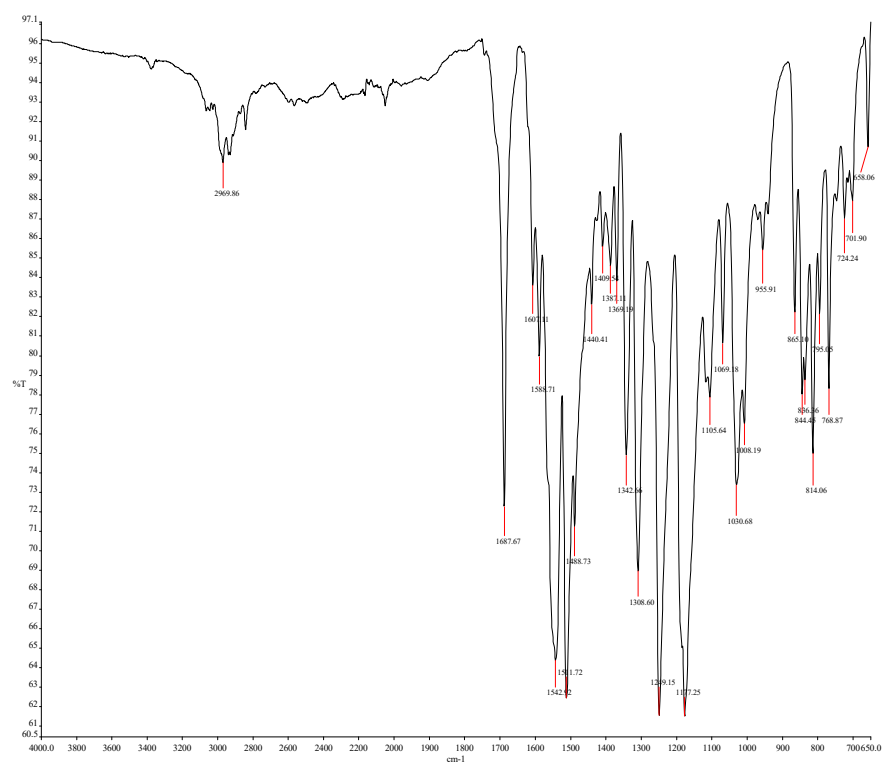


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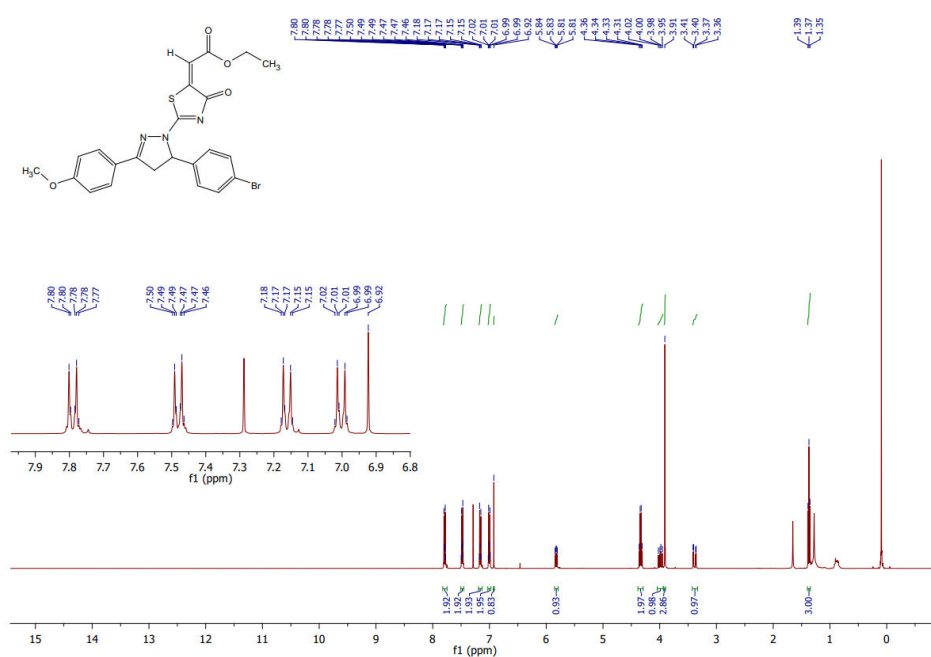


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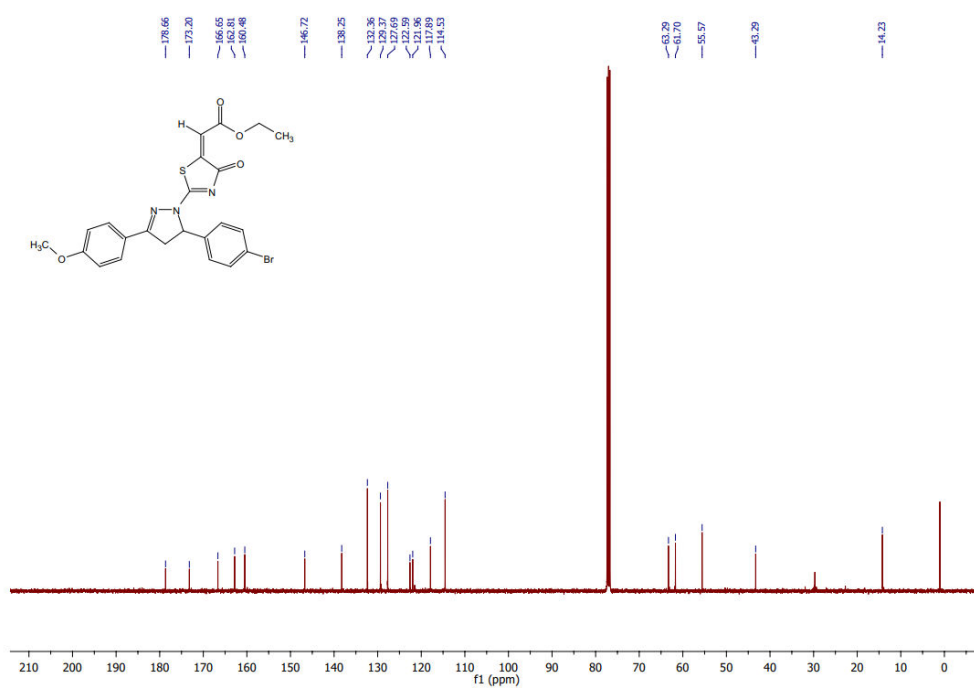


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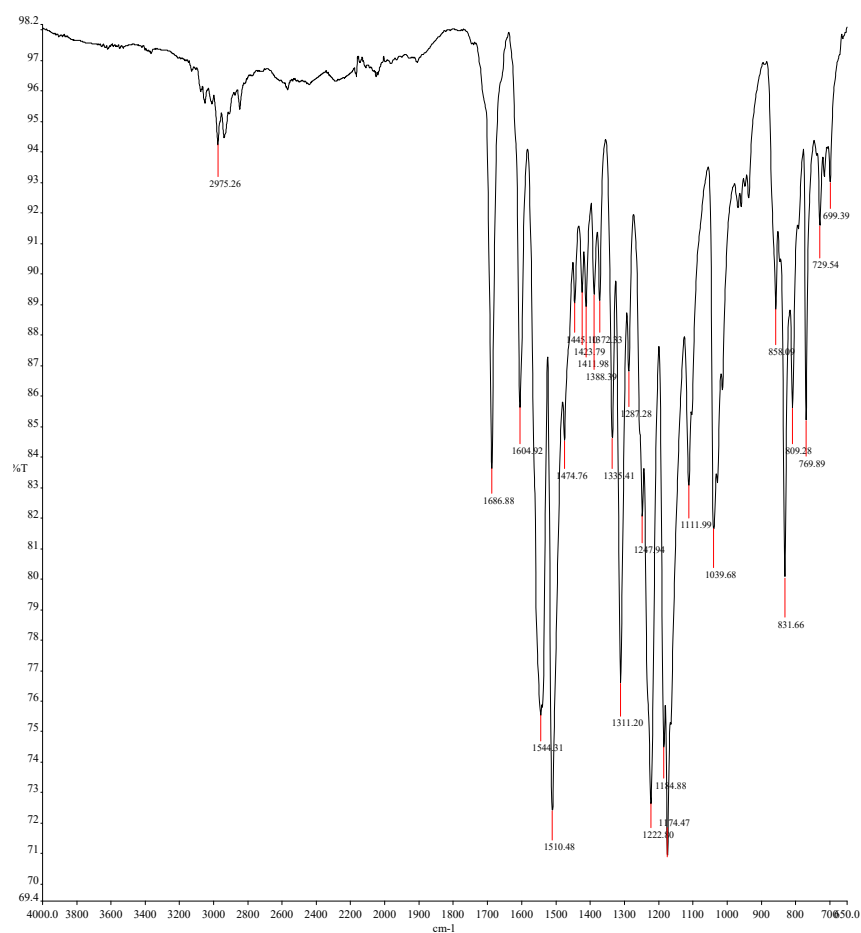


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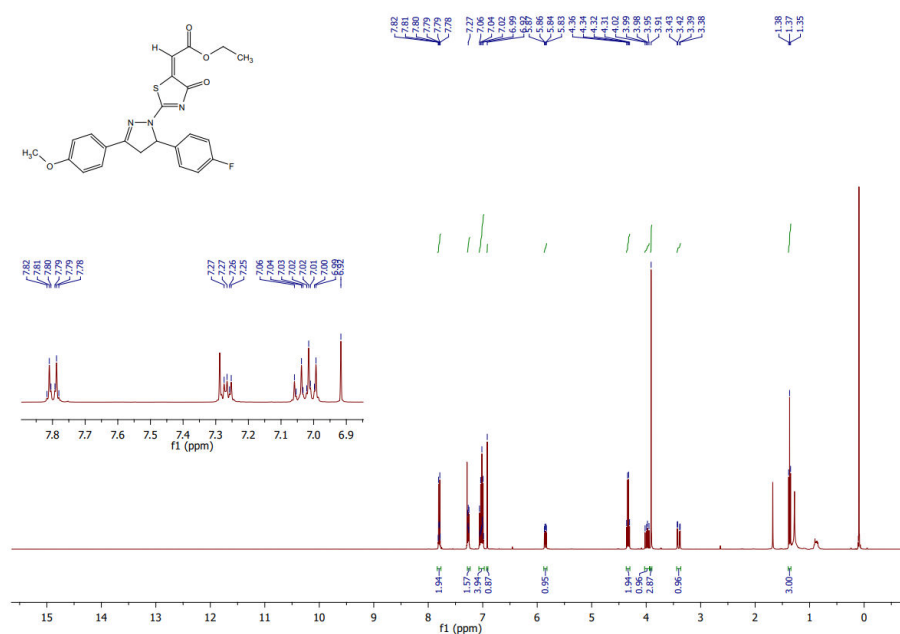
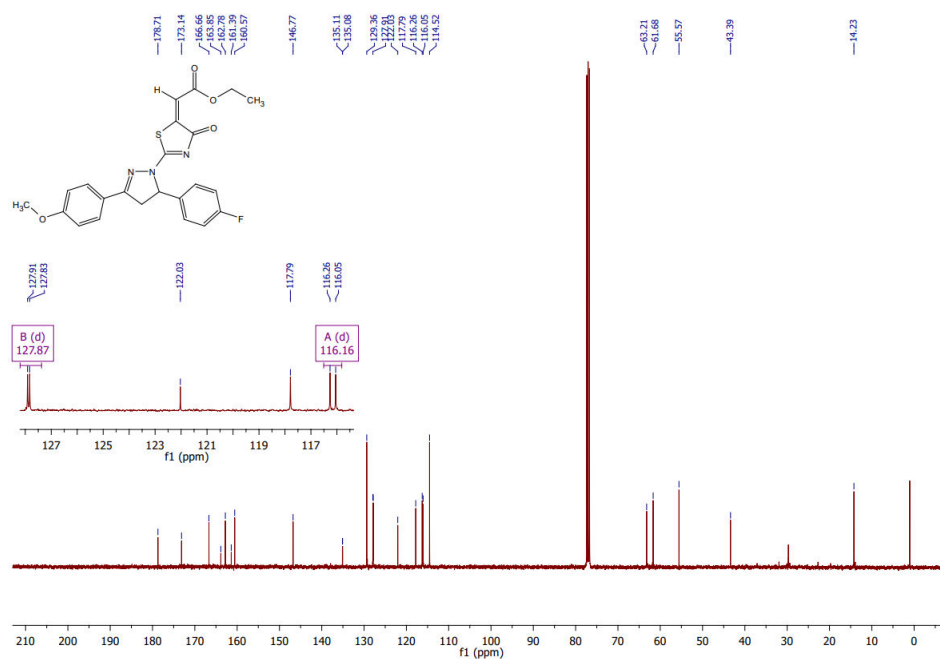
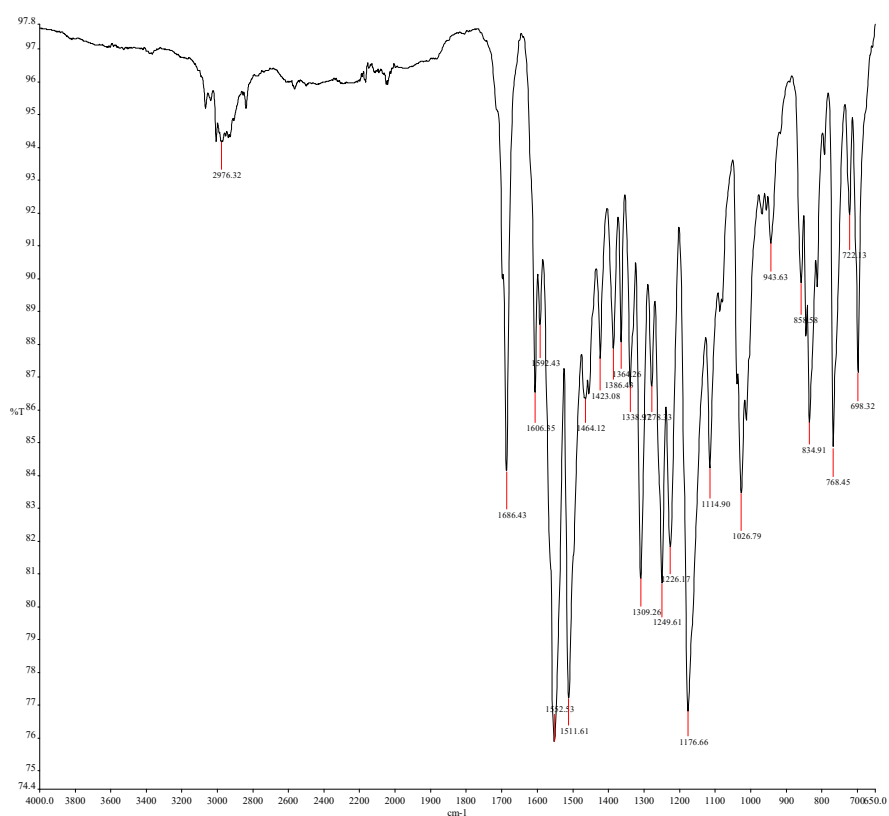
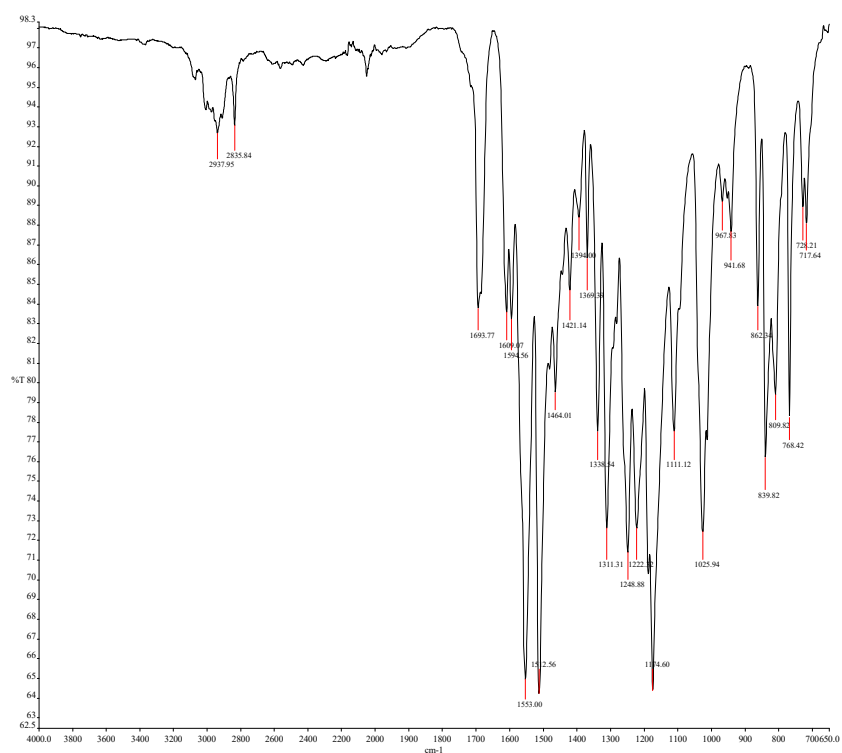
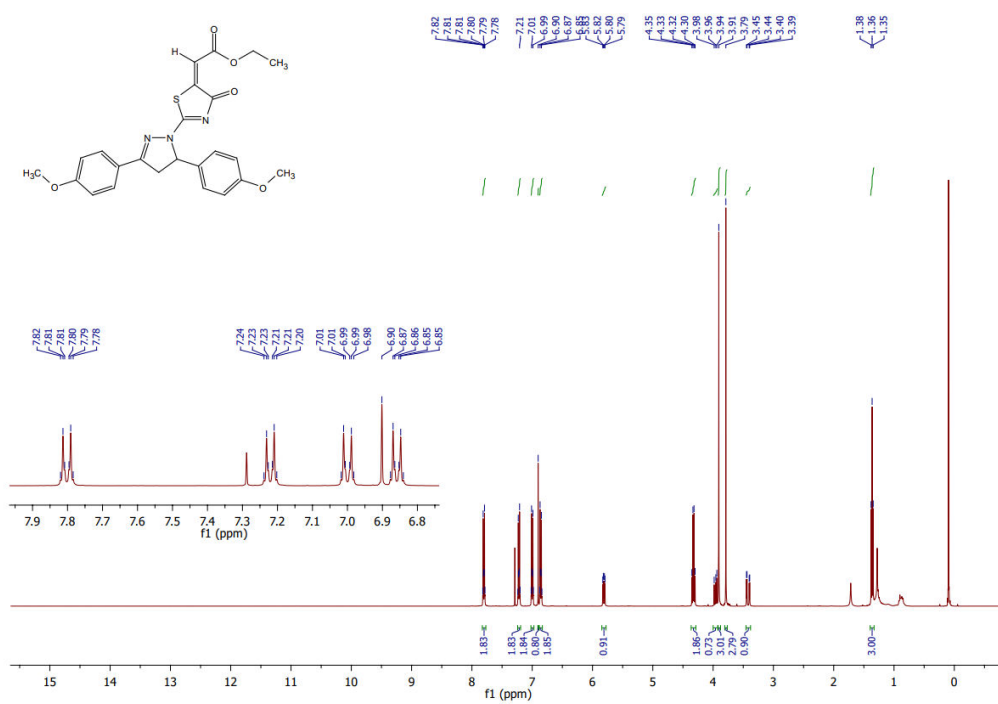


Fig. S26, ES†

Fig. S27, ES⁺Fig. S28, ES⁺



Fig. S31, ES⁺Fig. S32, ES⁺

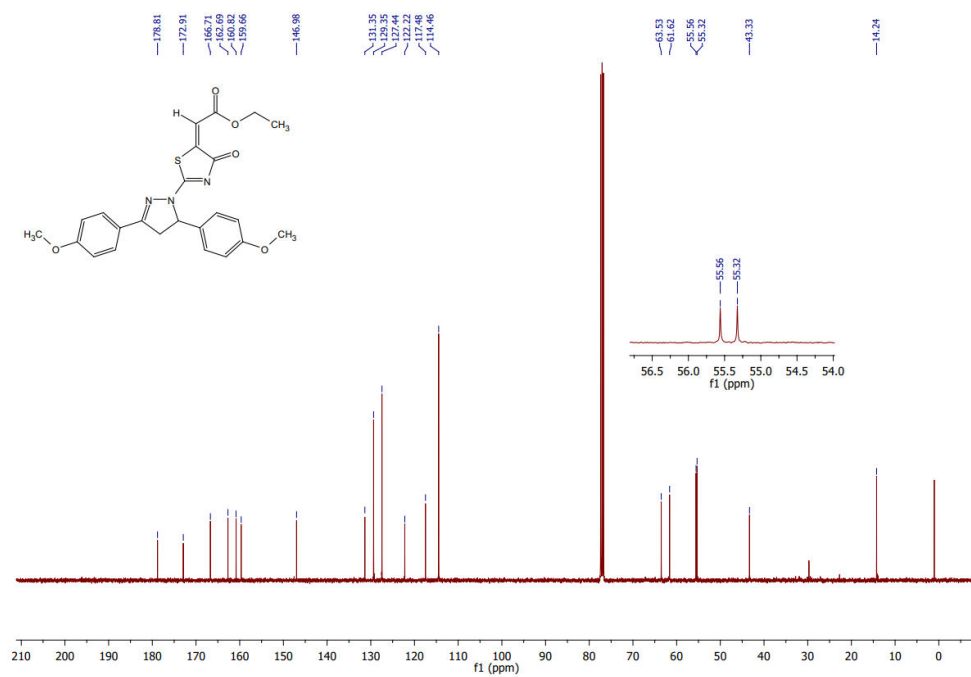


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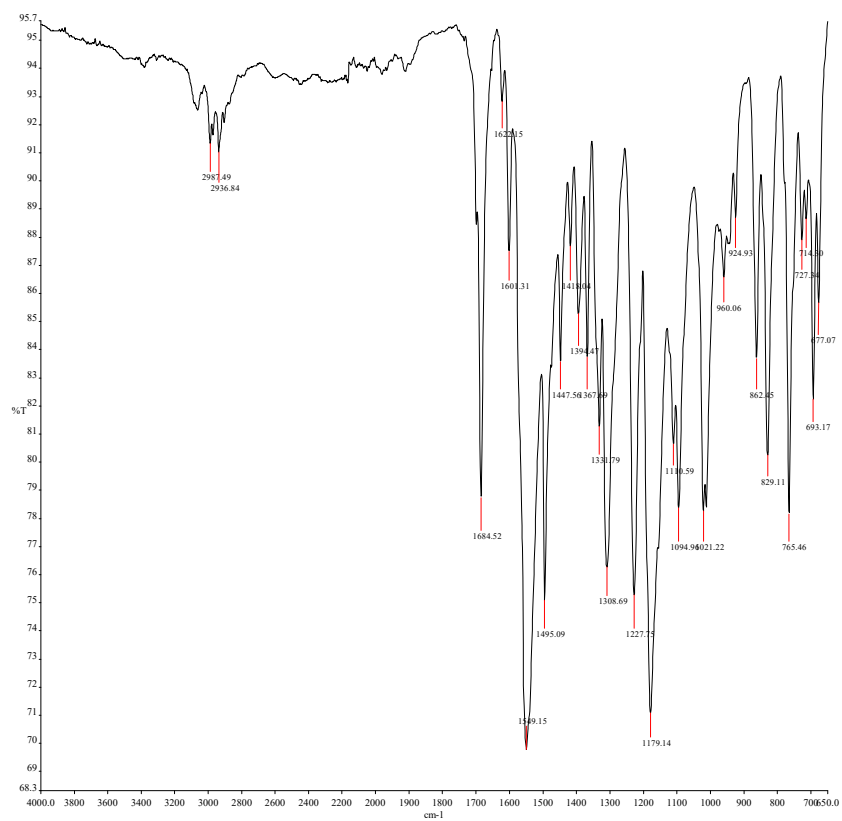
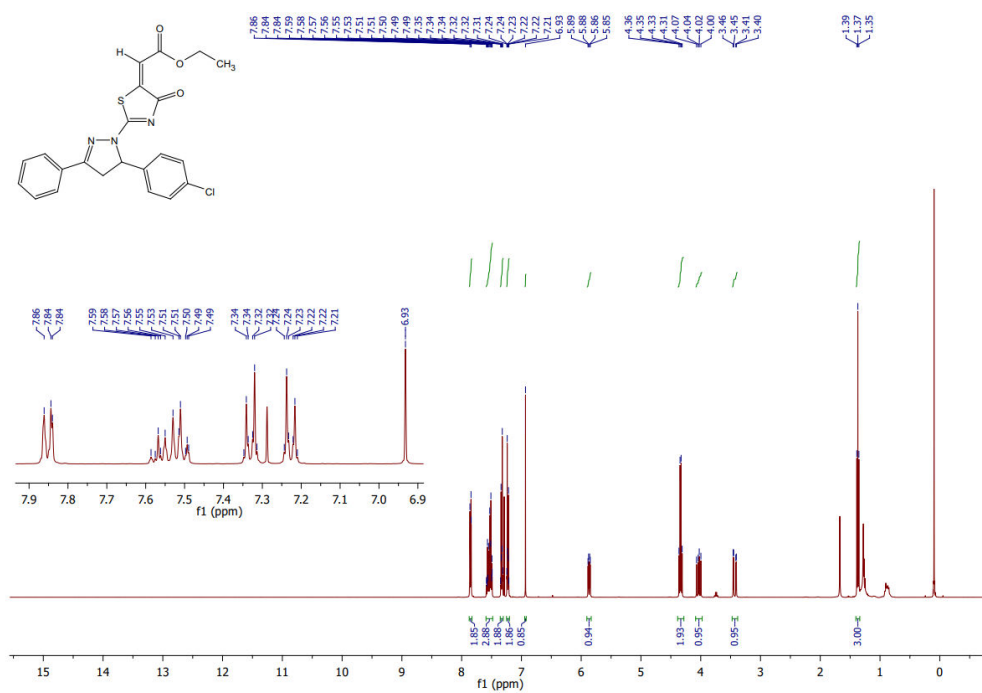
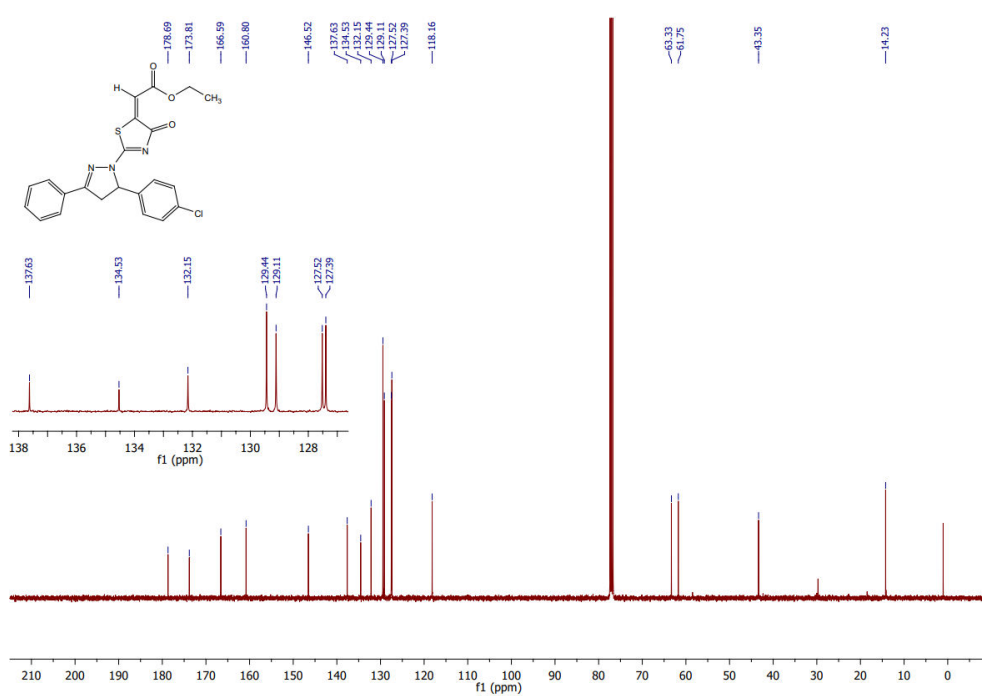


Fig. S34, ES†

Fig. S35, ES⁺Fig. S36, ES⁺

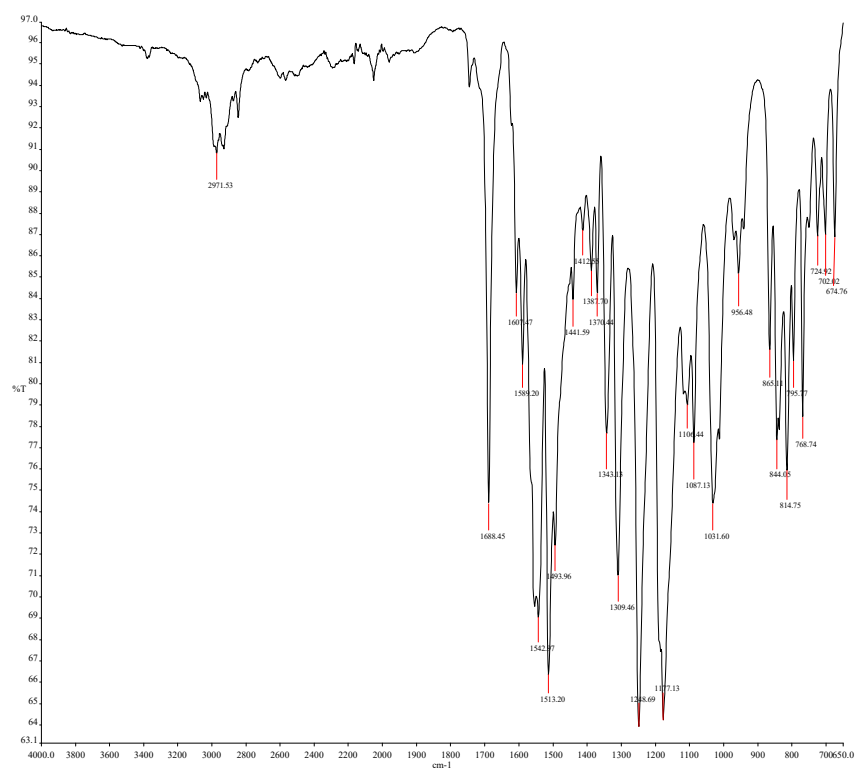


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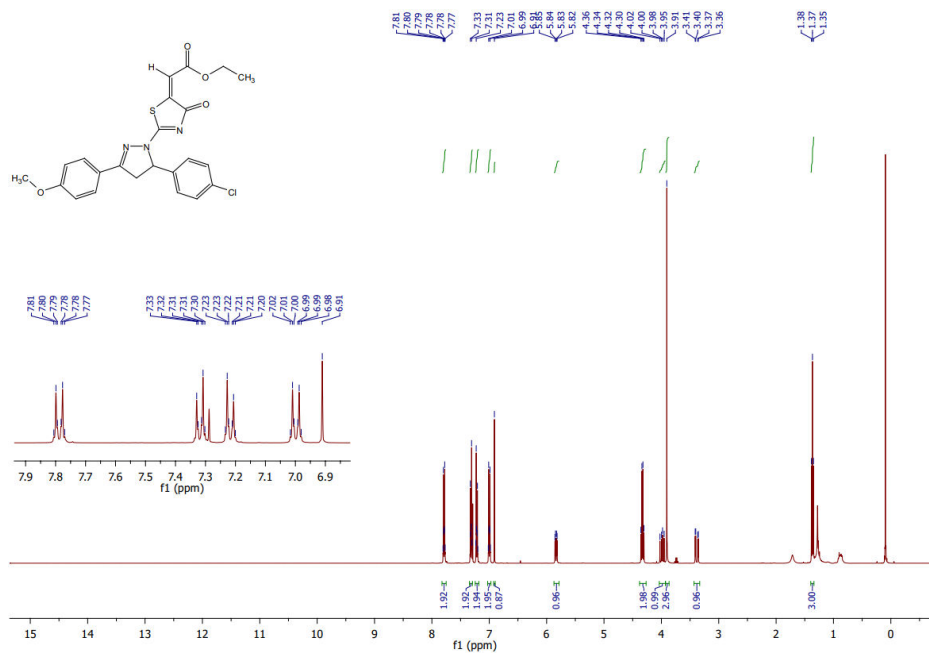


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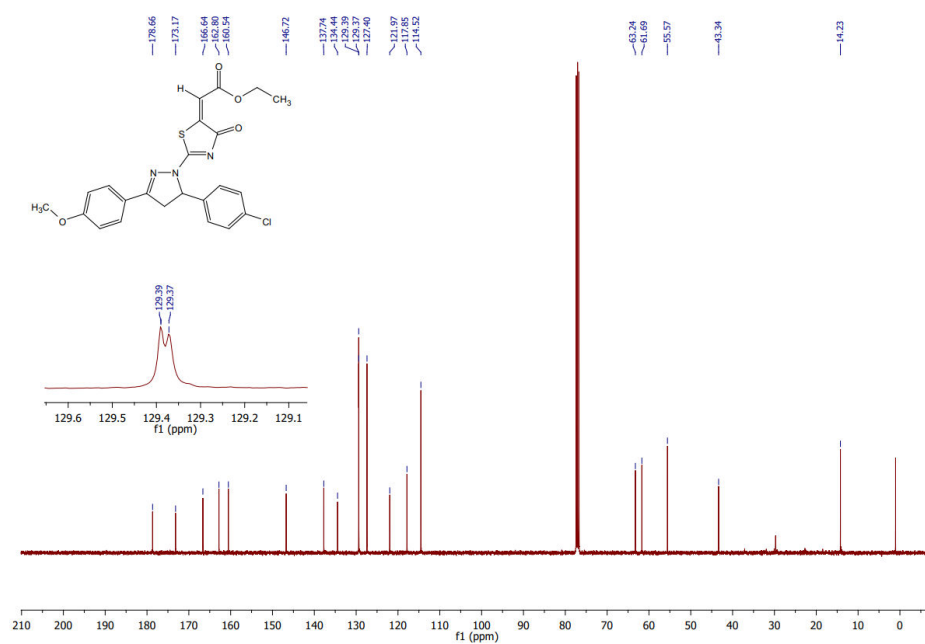


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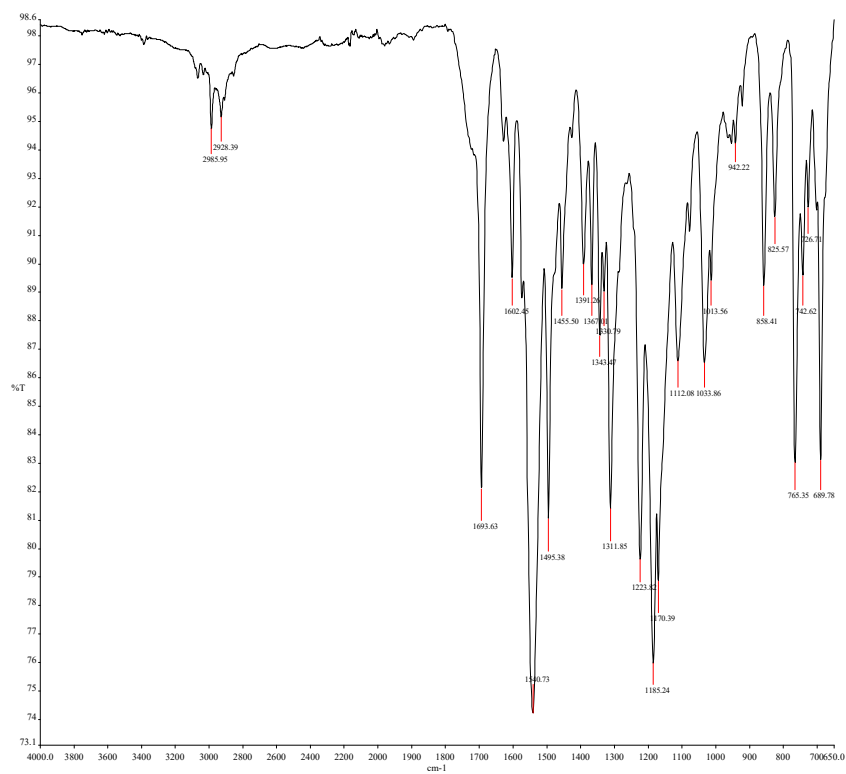
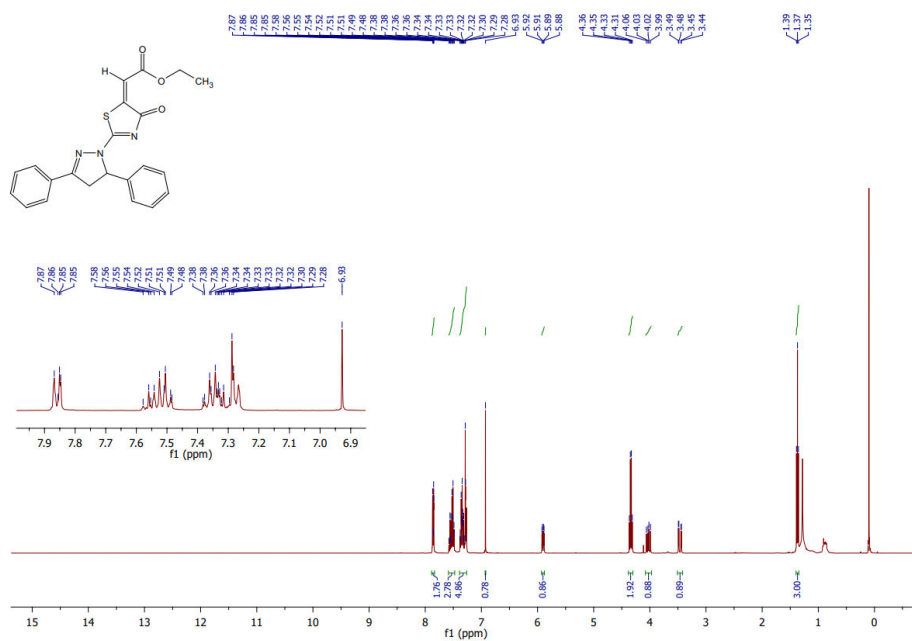
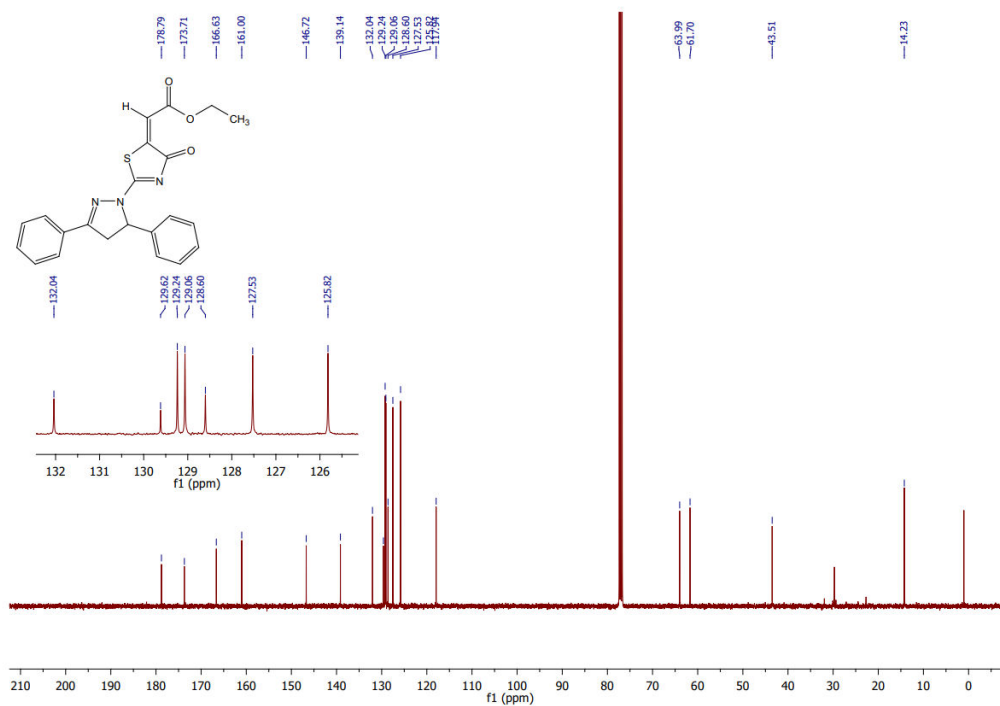


Fig. S40, ES†

Fig. S41, ES⁺Fig. S42, ES⁺

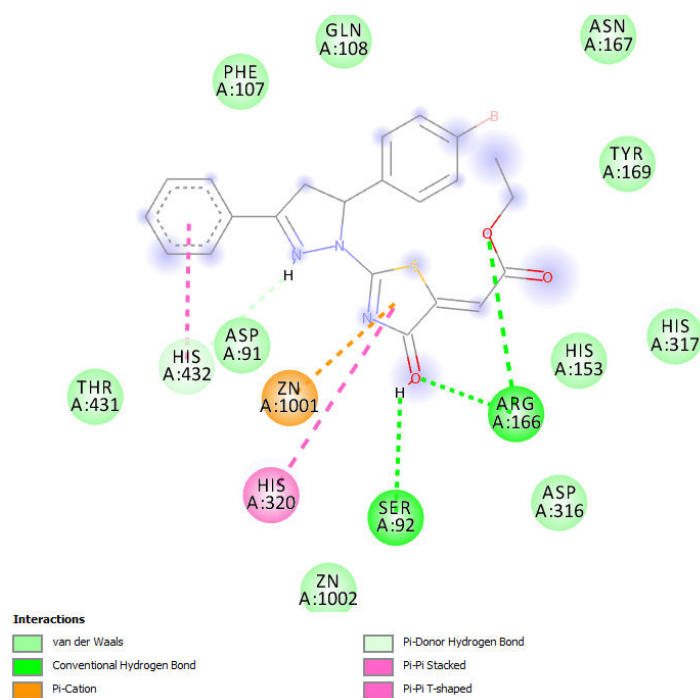


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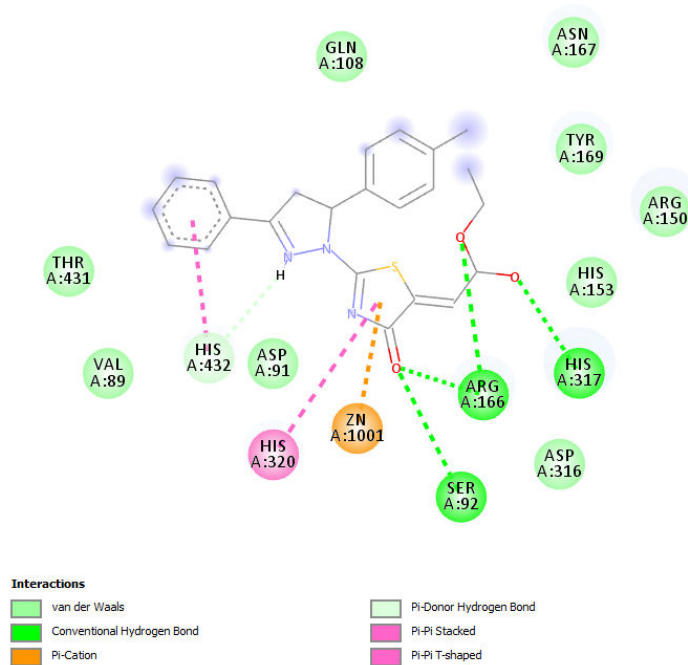


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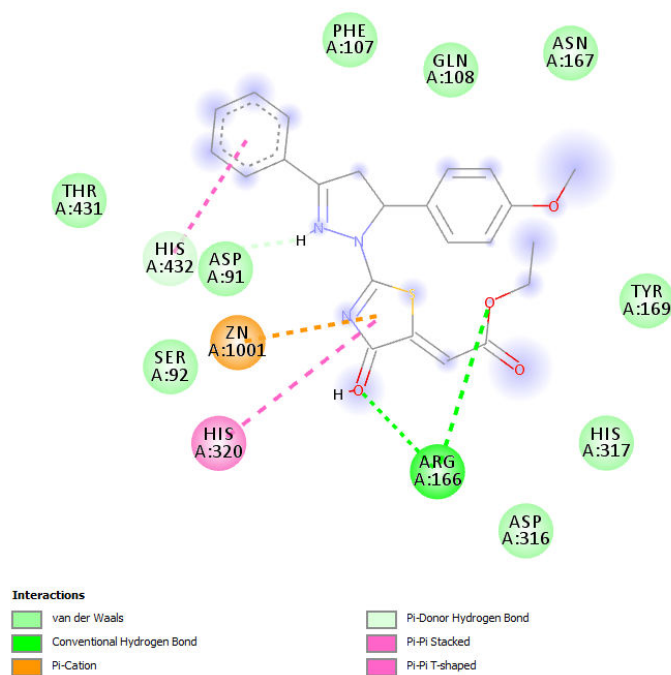


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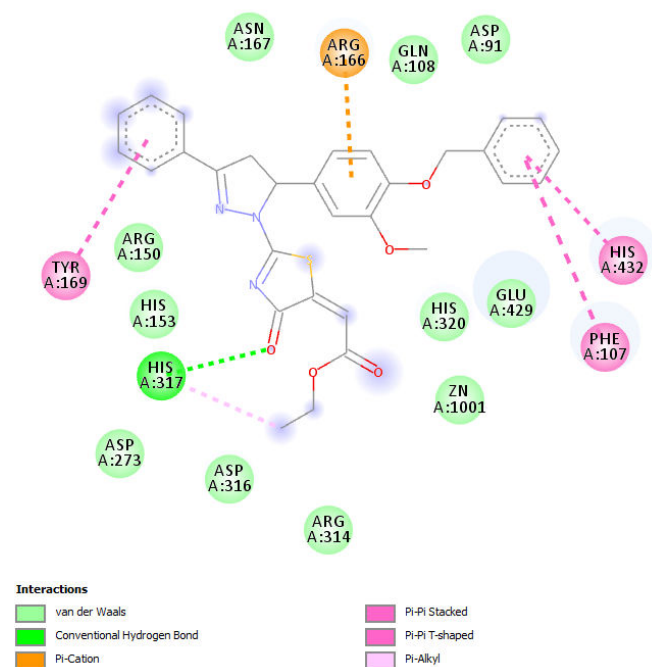


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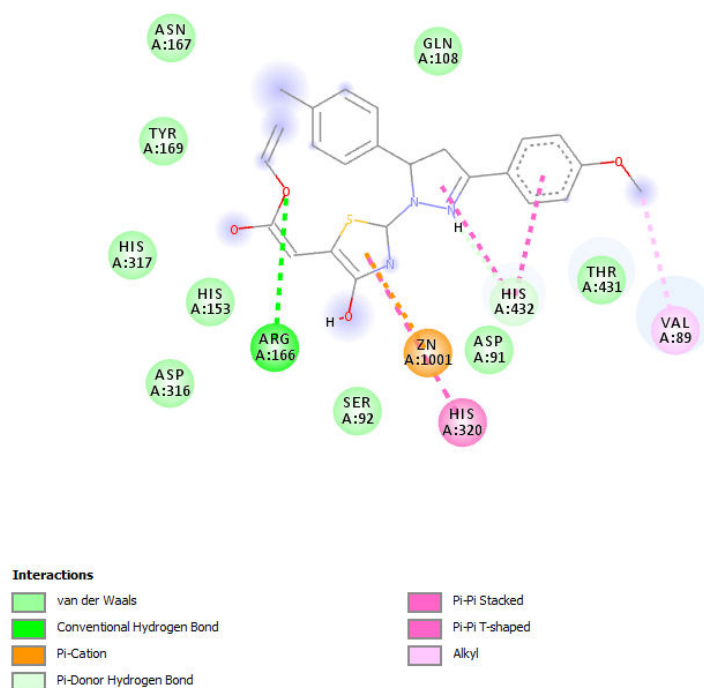


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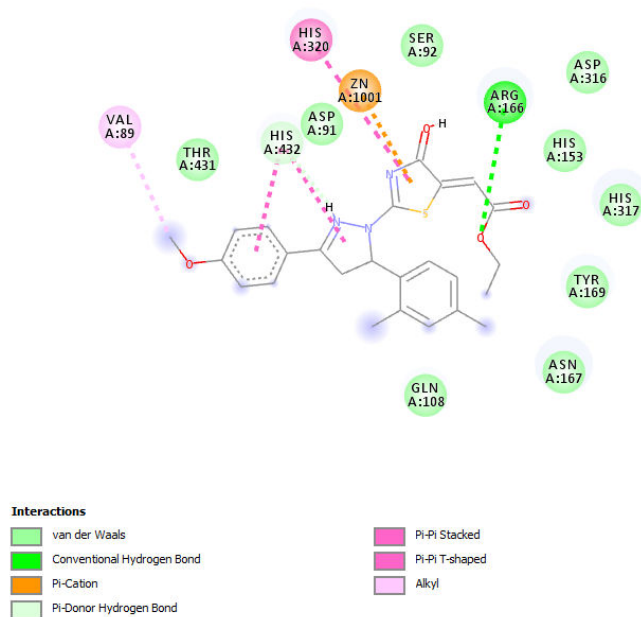


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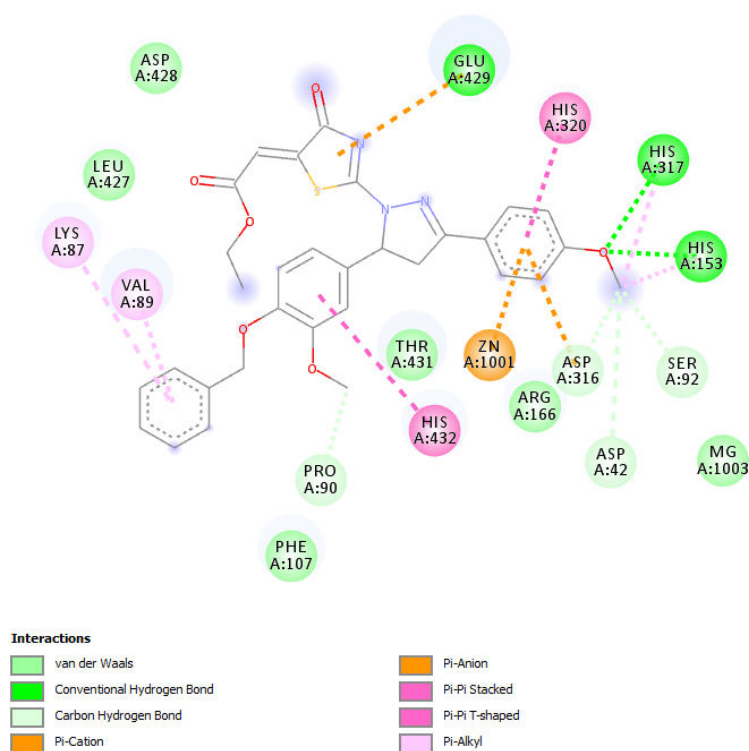


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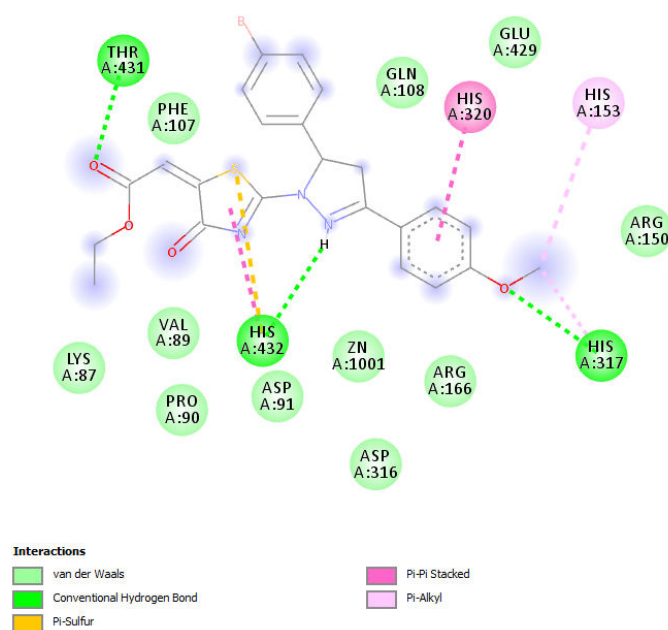


Fig. S50, ES‡

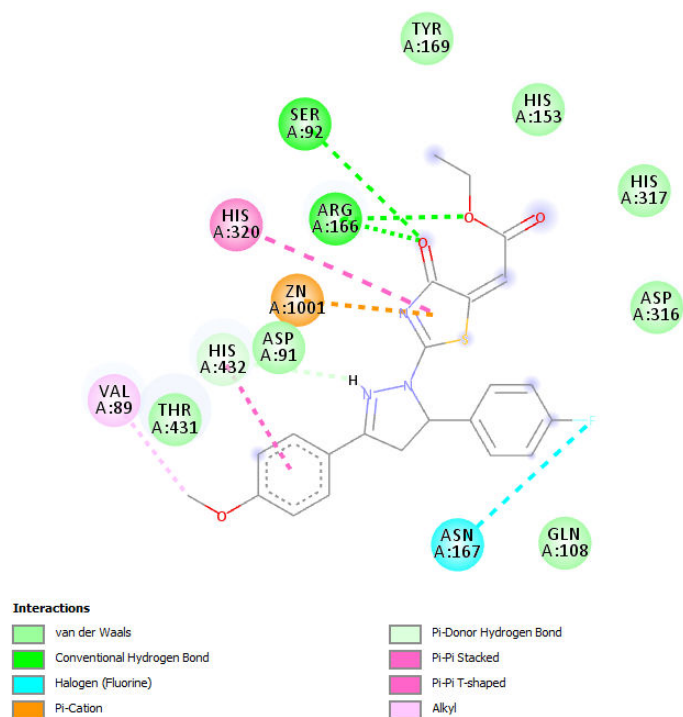


Fig. S51, ES‡

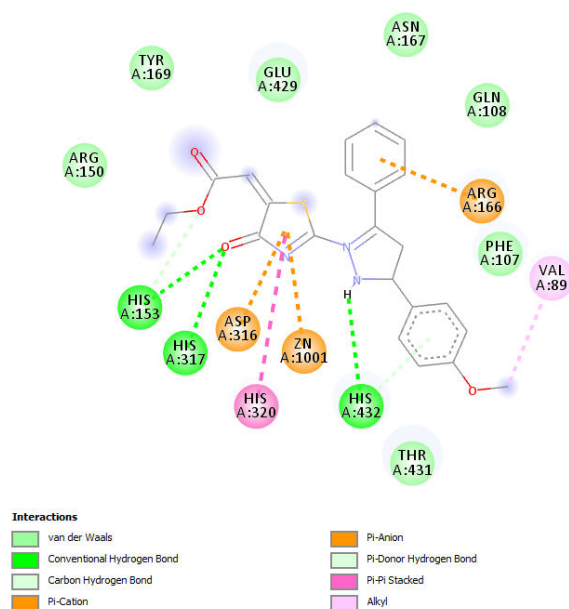


Fig. S52, ES‡

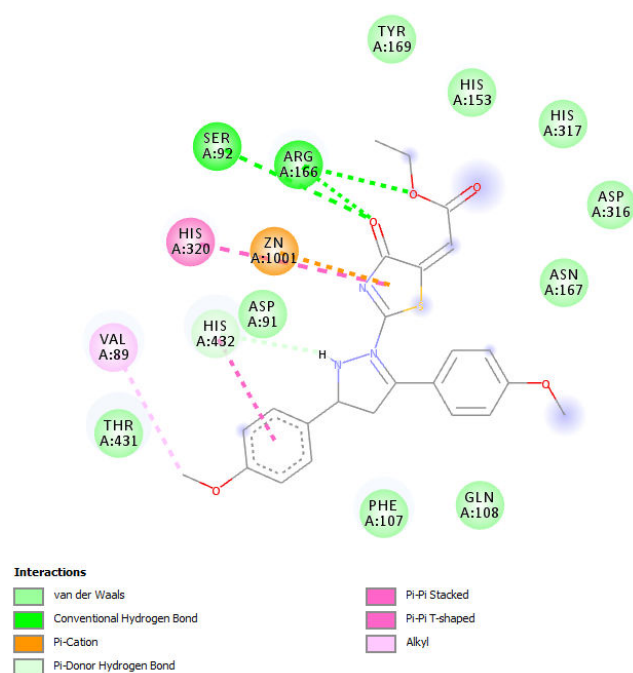


Fig. S53, ES‡

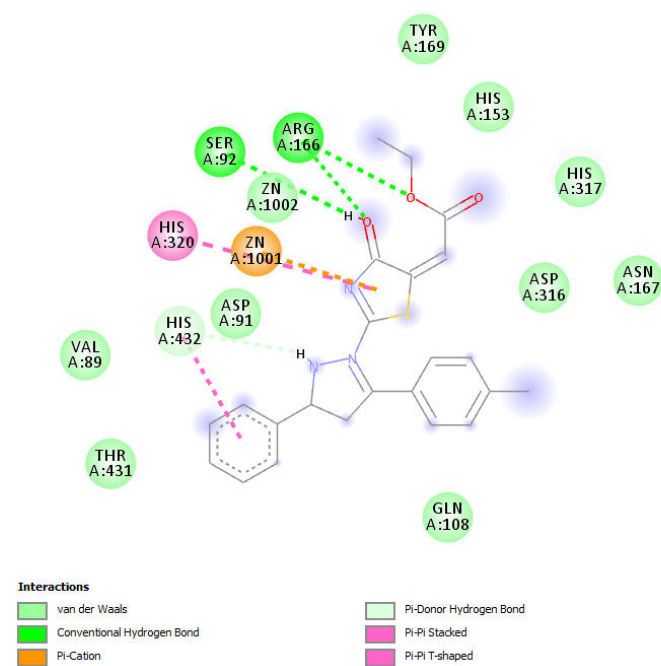


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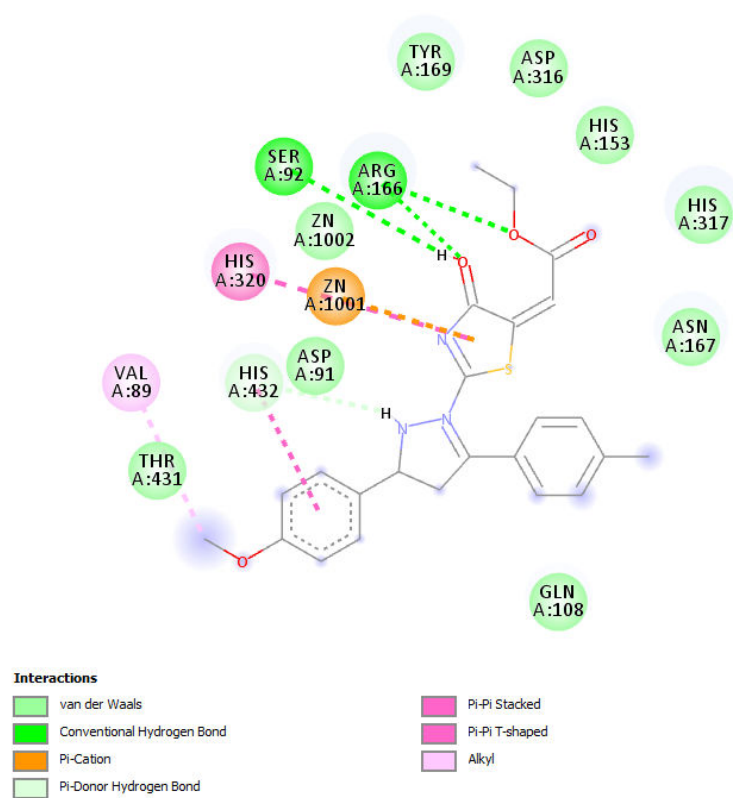


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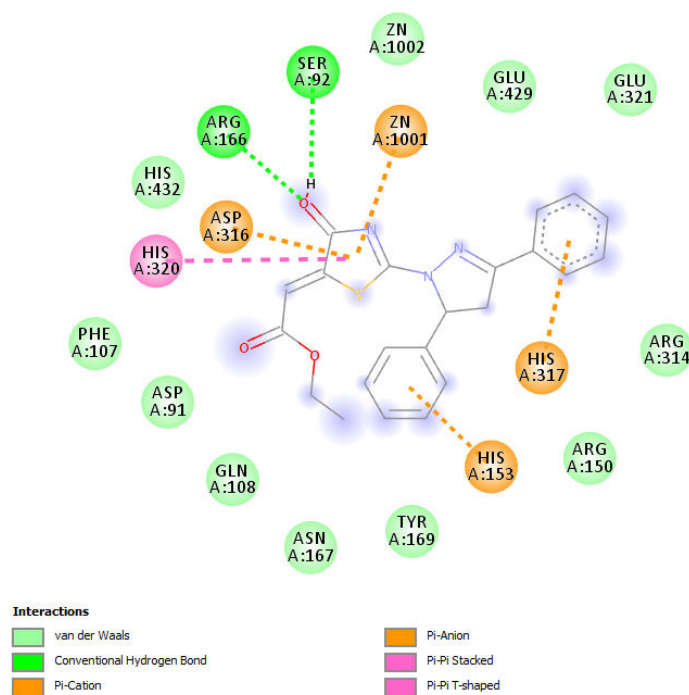


Fig. S56, ES‡

References:

1. Gottlieb HE, Kotlyar V, Nudelman A. NMR chemical shifts of common laboratory solvents as trace impurities. *J Org Chem.* 1997;62(21):7512-7515.