

## Supplementary information

**Facile Synthesis of *N*-(4-bromo-3-methylphenyl)pyrazine-2-carboxamide derivatives; its Anti-Bacterial Activities Against Clinically isolated XDR *S. Typhi*, Alkaline Phosphatase Inhibitors activities and docking studies**

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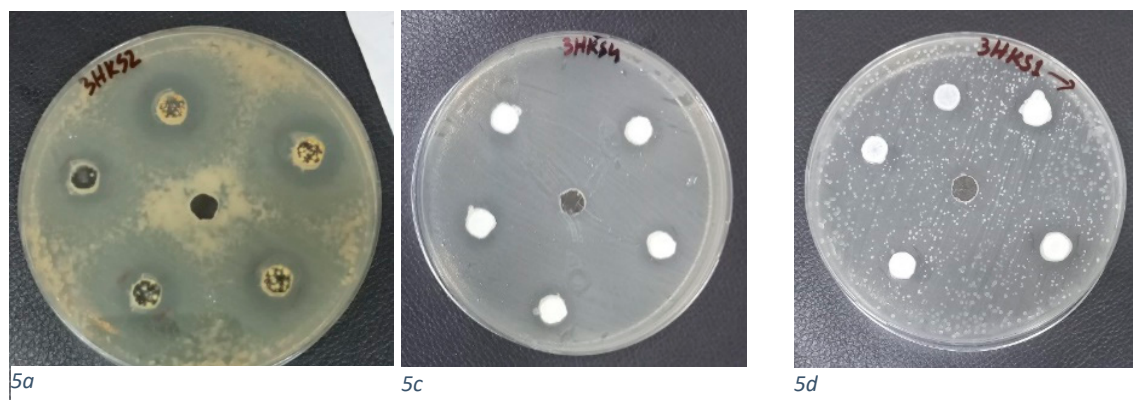
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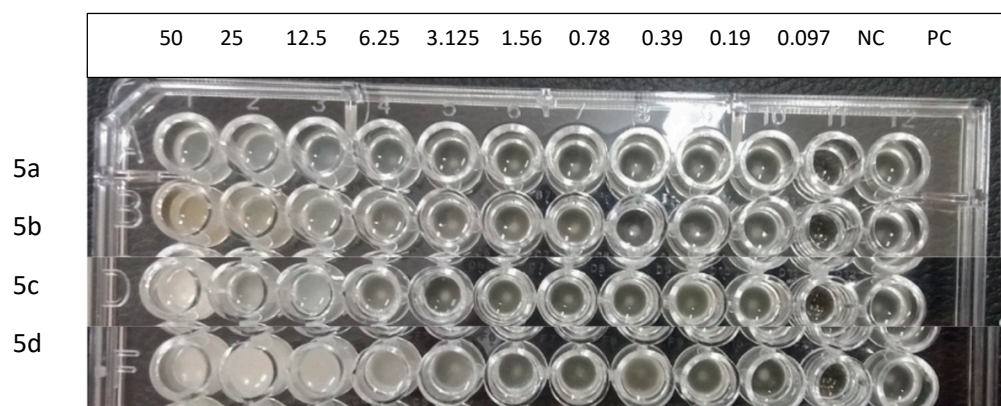
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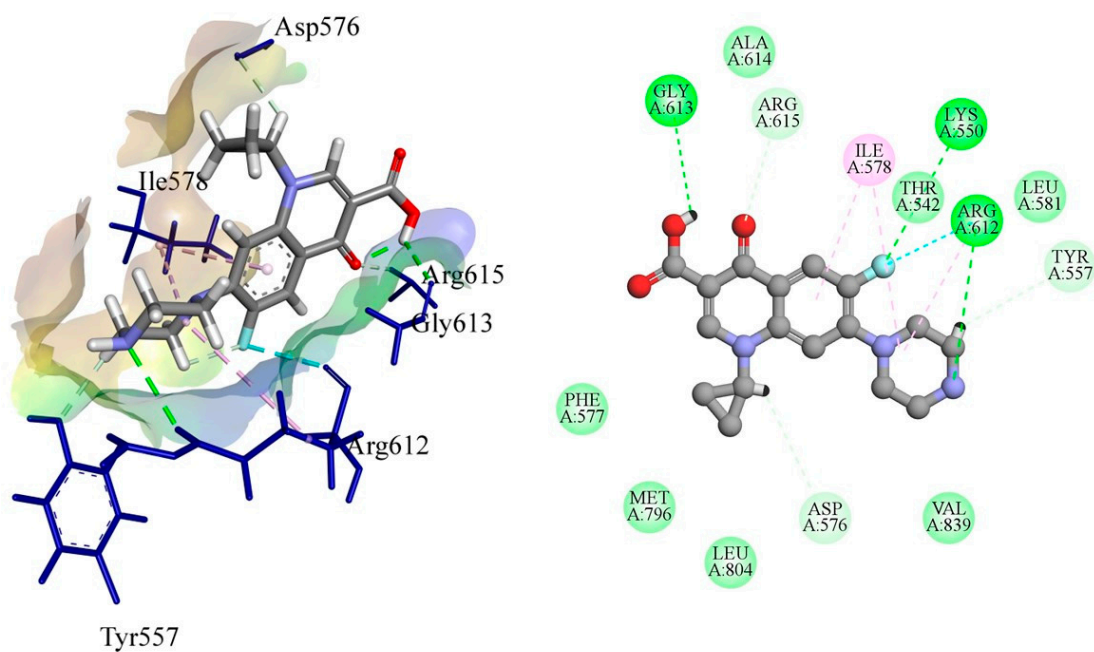
**Correspondence:** Nasir Rasool; nasirrasool@gcuf.edu.pk (N.R.)



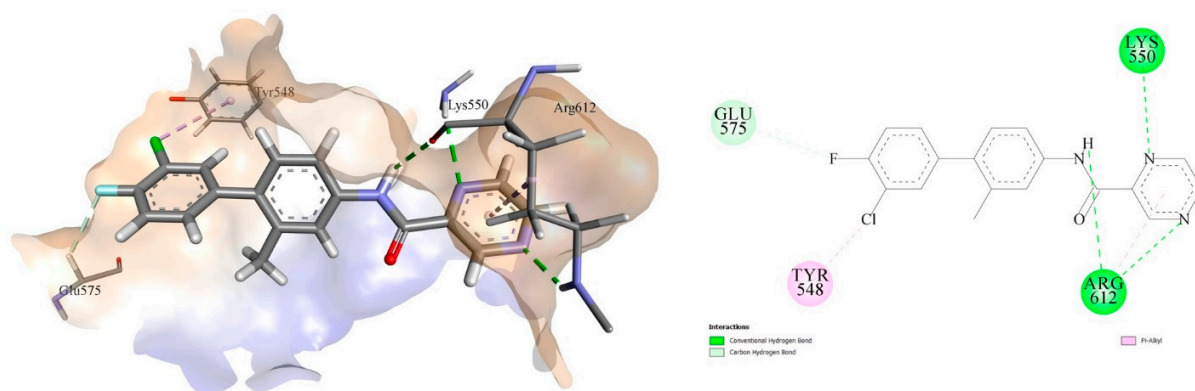
**Figure S1: Agar well diffusion of different compounds against *XDR S. Typhi***



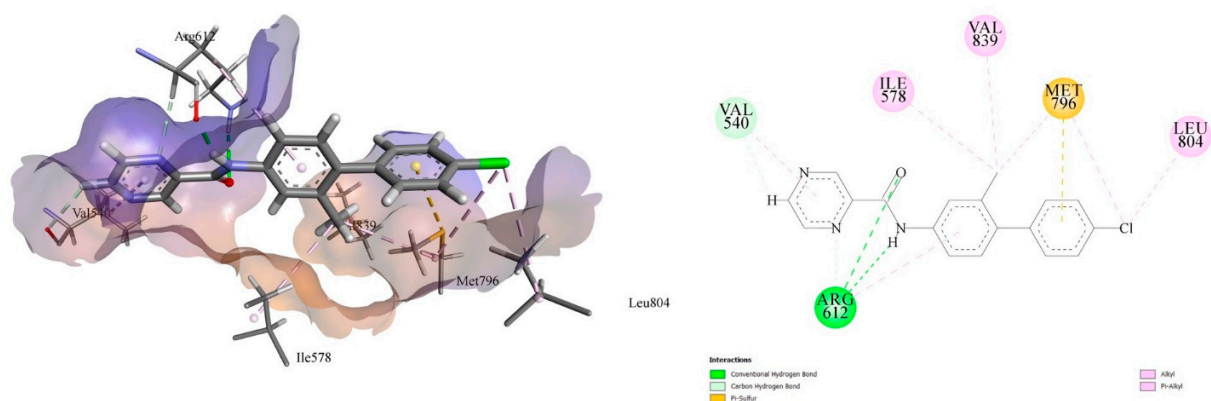
**Figure S2: MIC of compounds against *XDR S. Typhi*. NC: negative control and PC: positive control**



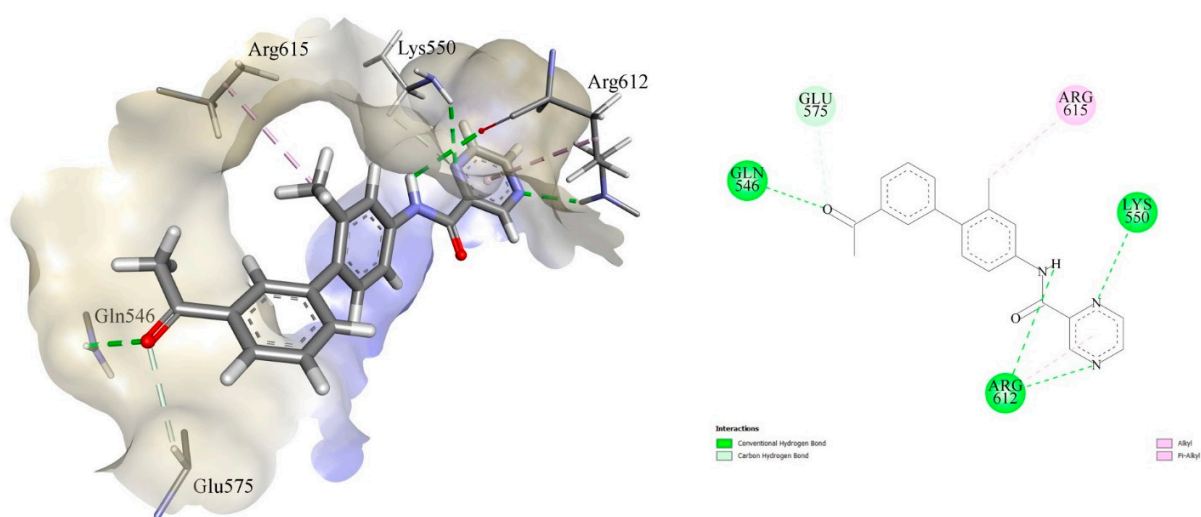
**Figure S3:** The putative binding mode of **Ciprofloxacin** within the active pocket of DNA gyrase protein PDB ID: 5ztj.



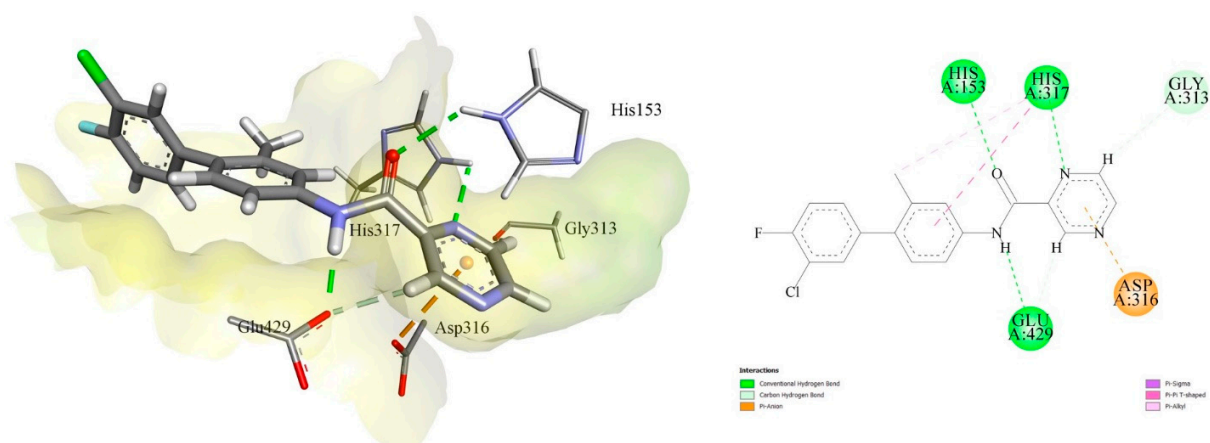
**Figure S4.** Putative binding mode of **5a**, within the active pocket of the target protein with pdb ID: 5ztj



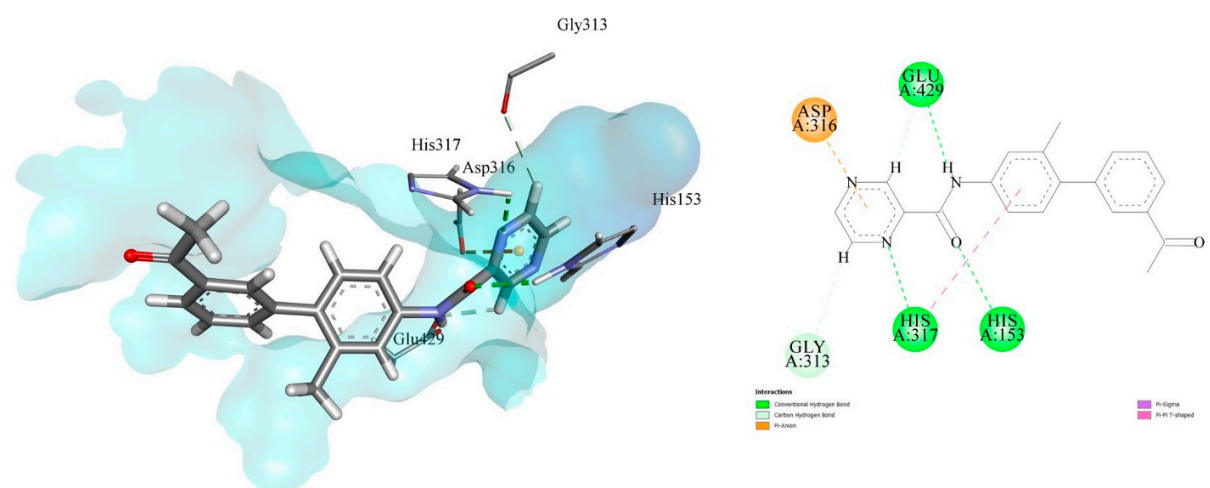
**Figure S5.** Putative binding mode of **5b**, within the active pocket of the target protein with pdb ID: 5ztj



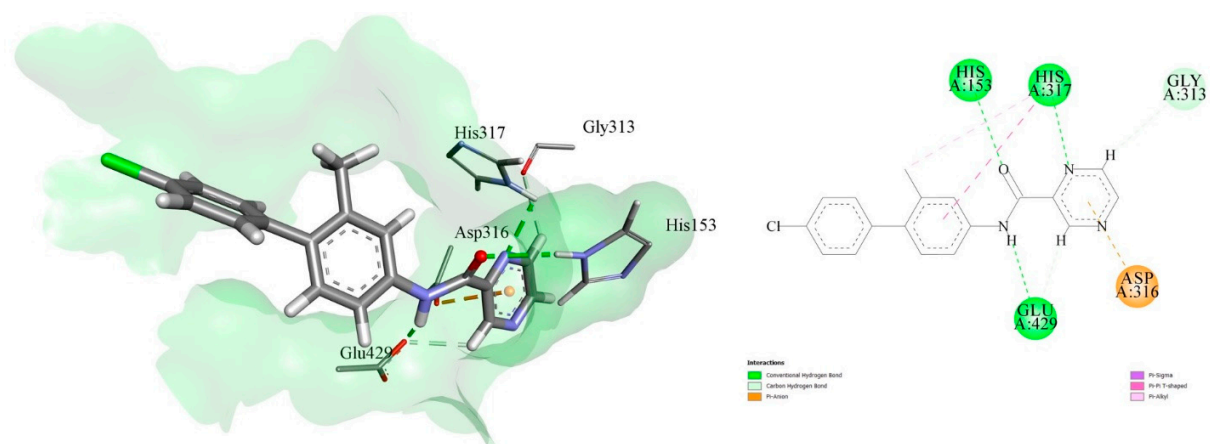
**Figure S6.** Putative binding mode of **5c**, within the active pocket of the target protein with pdb ID: 5ztj



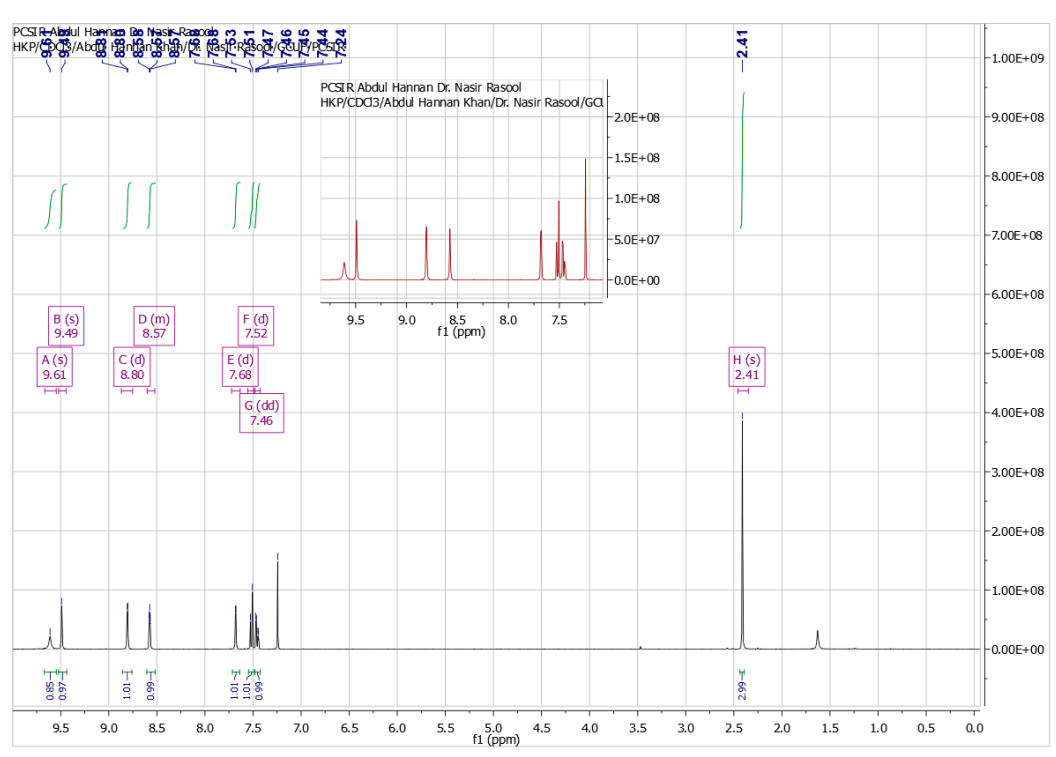
**Figure S7:** Putative binding mode of **4HKS<sub>2</sub>** in the active pocket of the target protein with PDB ID: 1EW2 (Supporting information)



**Figure S8:** Putative binding mode of **4HKS<sub>4</sub>** in the active pocket of the target protein with PDB ID: 1EW2 (Supporting information)



**Figure S9:** Putative binding mode of **5HKS<sub>7</sub>** in the active pocket of the target protein with PDB ID: 1EW2 (Supporting information)



**Figure S10:** HNMR of N-(4-bromo-3-methylphenyl)pyrazine-2-carboxamide (3)



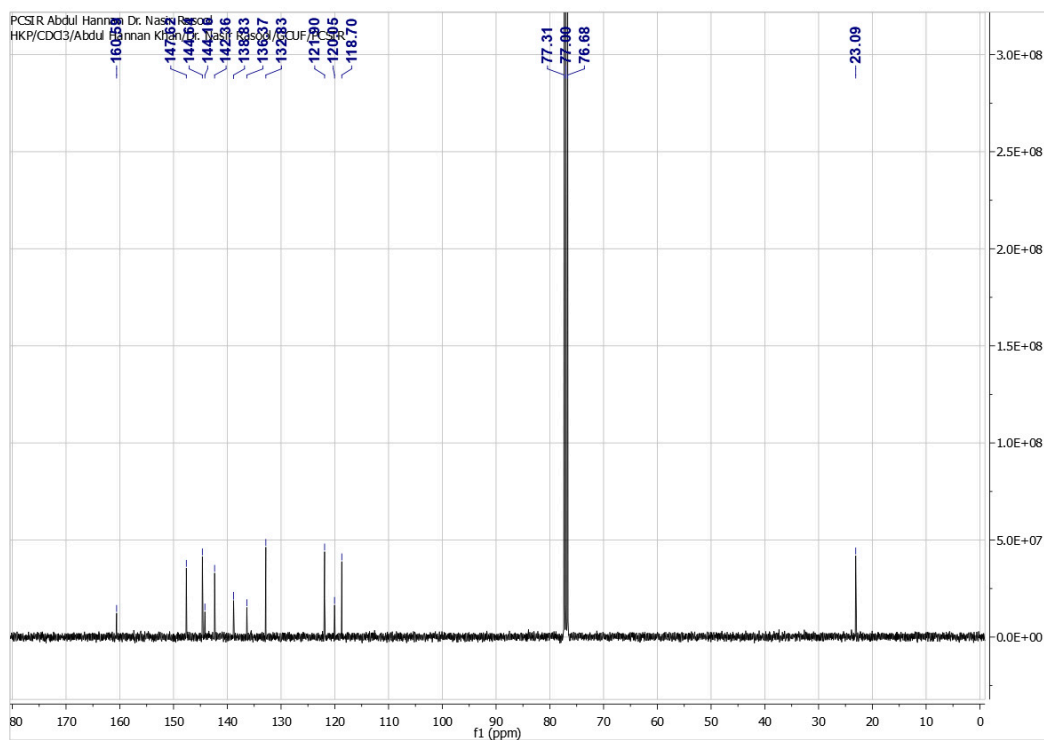


Figure S11:  $^{13}\text{C}$ NMR of N-(4-bromo-3-methylphenyl)pyrazine-2-carboxamide (3)

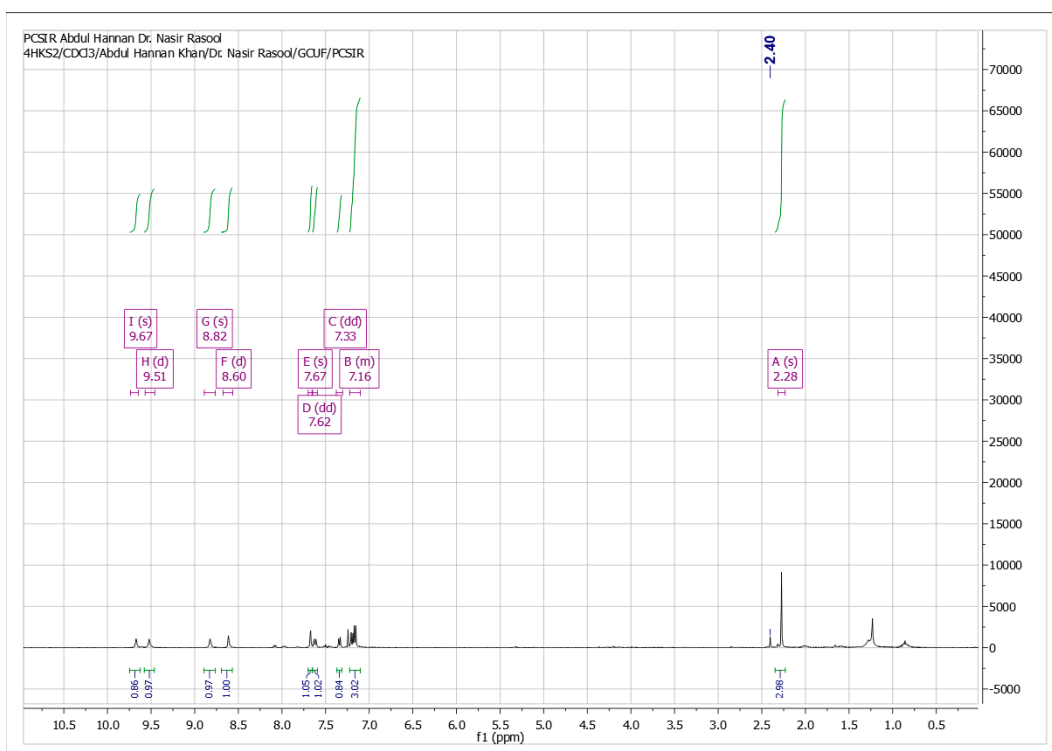


Figure S 12: N-(3'-chloro-4'-fluoro-2-methyl-[1,1'-biphenyl]-4-yl)pyrazine-2-carboxamide (5a)

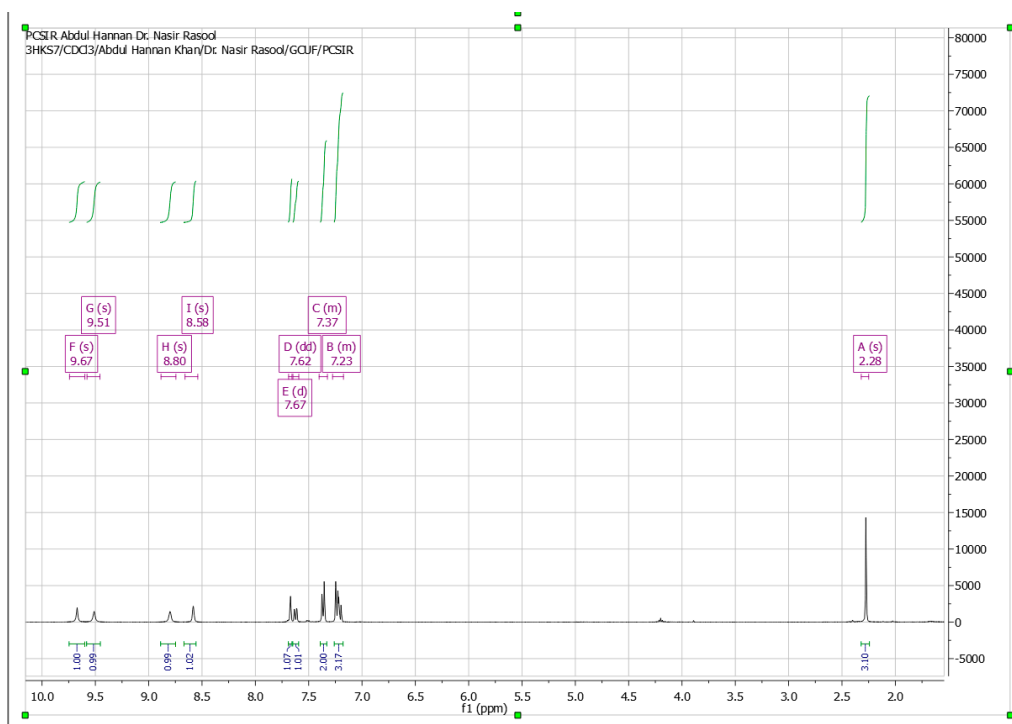
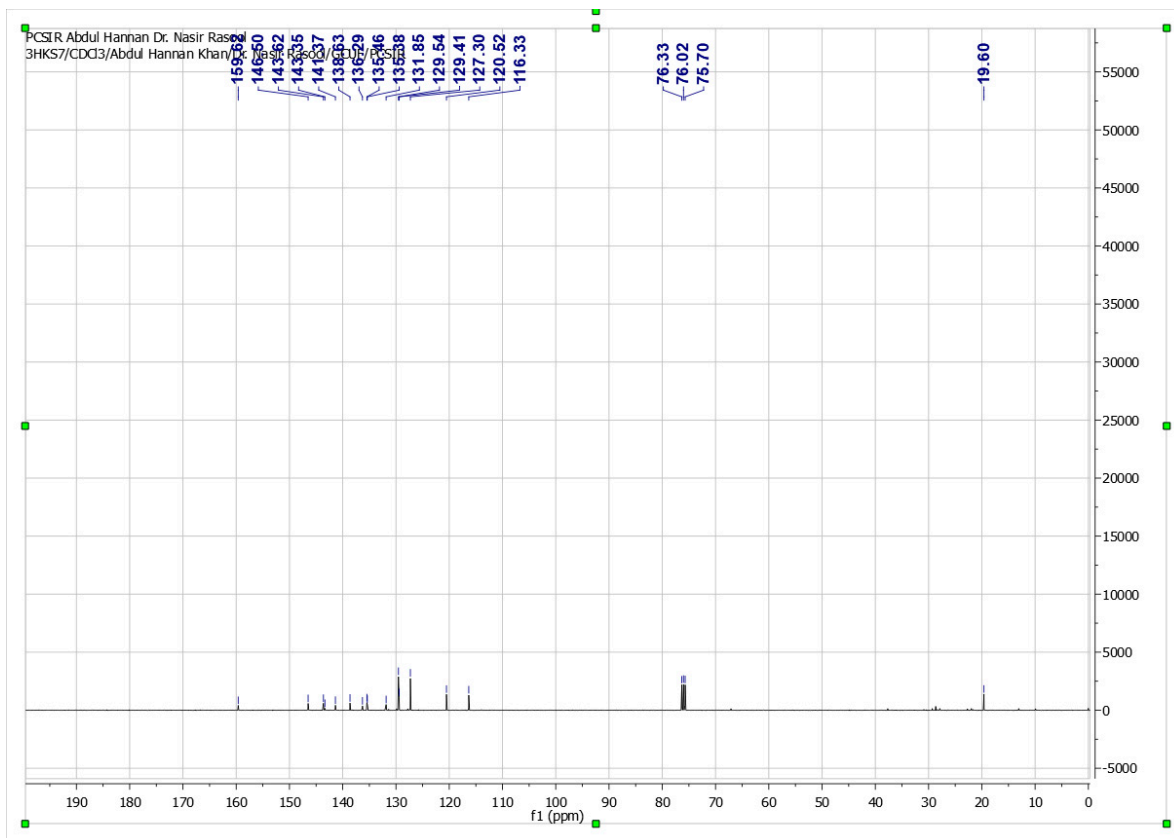
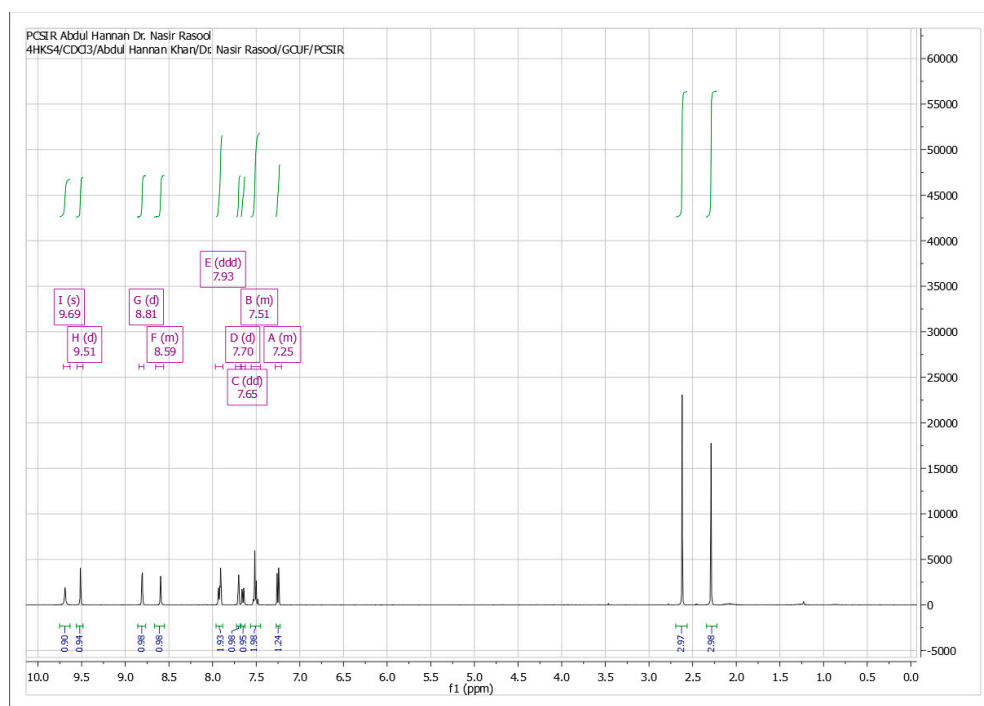


Figure S13: <sup>1</sup>H NMR N-(4'-chloro-2-methyl-[1,1'-biphenyl]-4-yl)pyrazine-2-carboxamide (5b)





**Figure S14: <sup>13</sup>CNMR N-(4'-chloro-2-methyl-[1,1'-biphenyl]-4-yl)pyrazine-2-carboxamide (5b)**



**Figure S15: <sup>1</sup>H NMR N-(3'-acetyl-2-methyl-[1,1'-biphenyl]-4-yl)pyrazine-2-carboxamide (5c)**

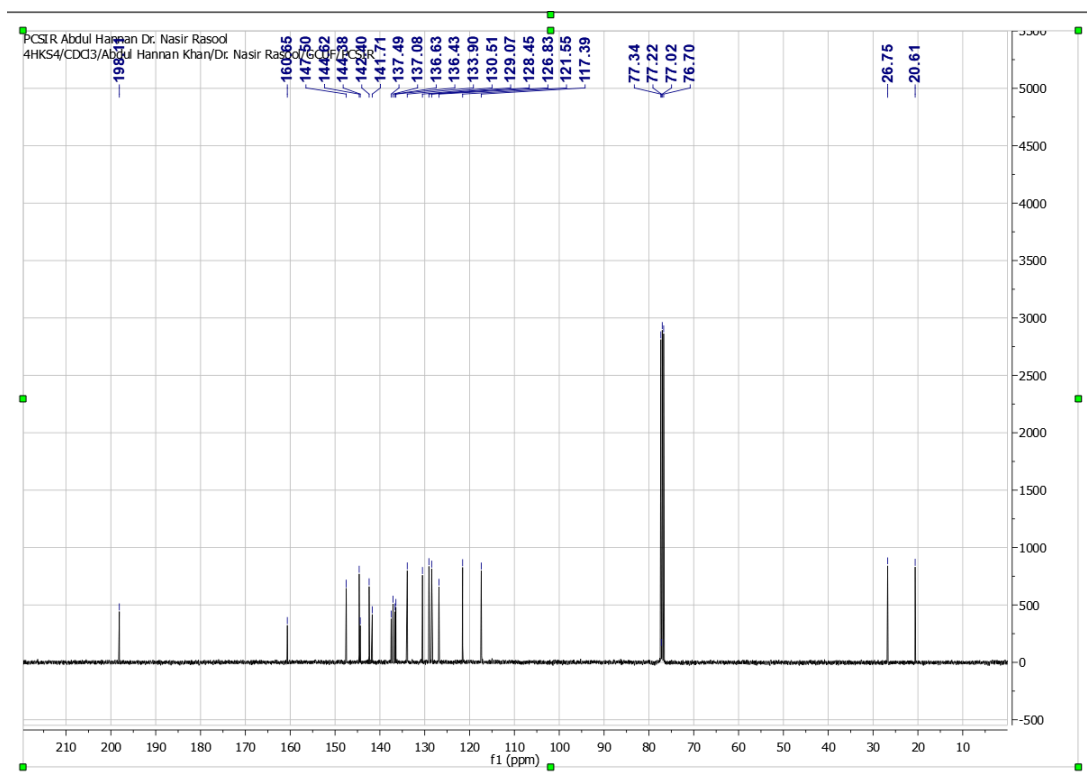


Figure S16: *N*-(3'-acetyl-2-methyl-[1,1'-biphenyl]-4-yl)pyrazine-2-carboxamide (5c)

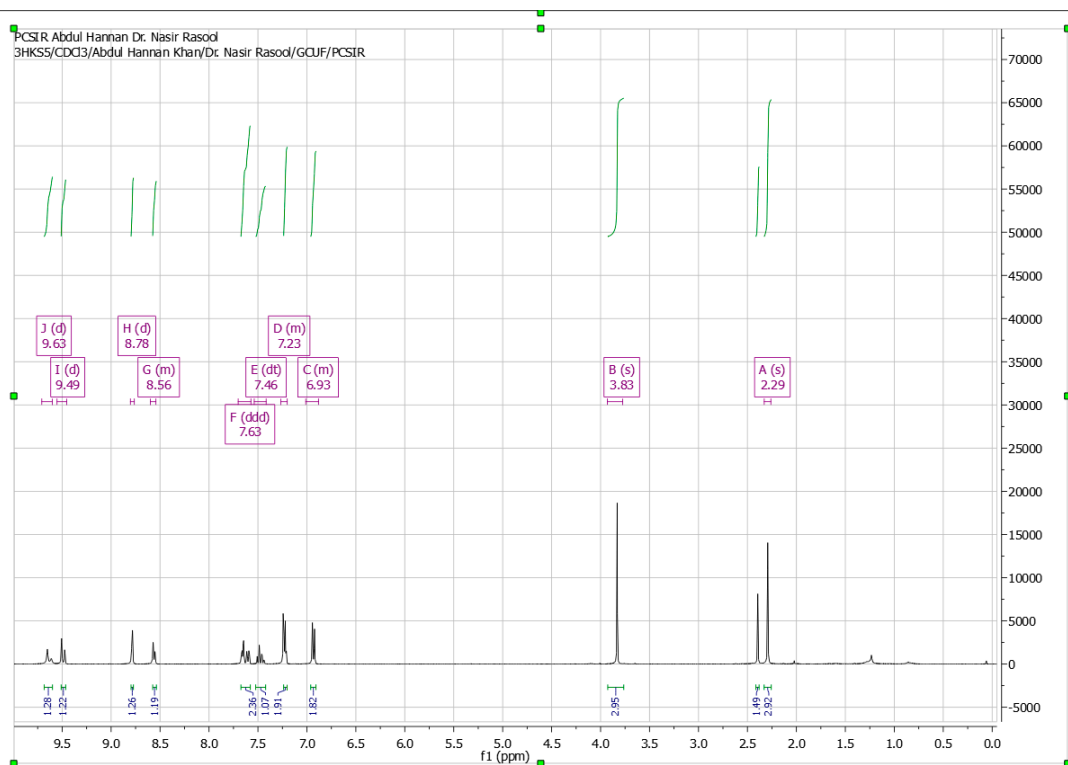
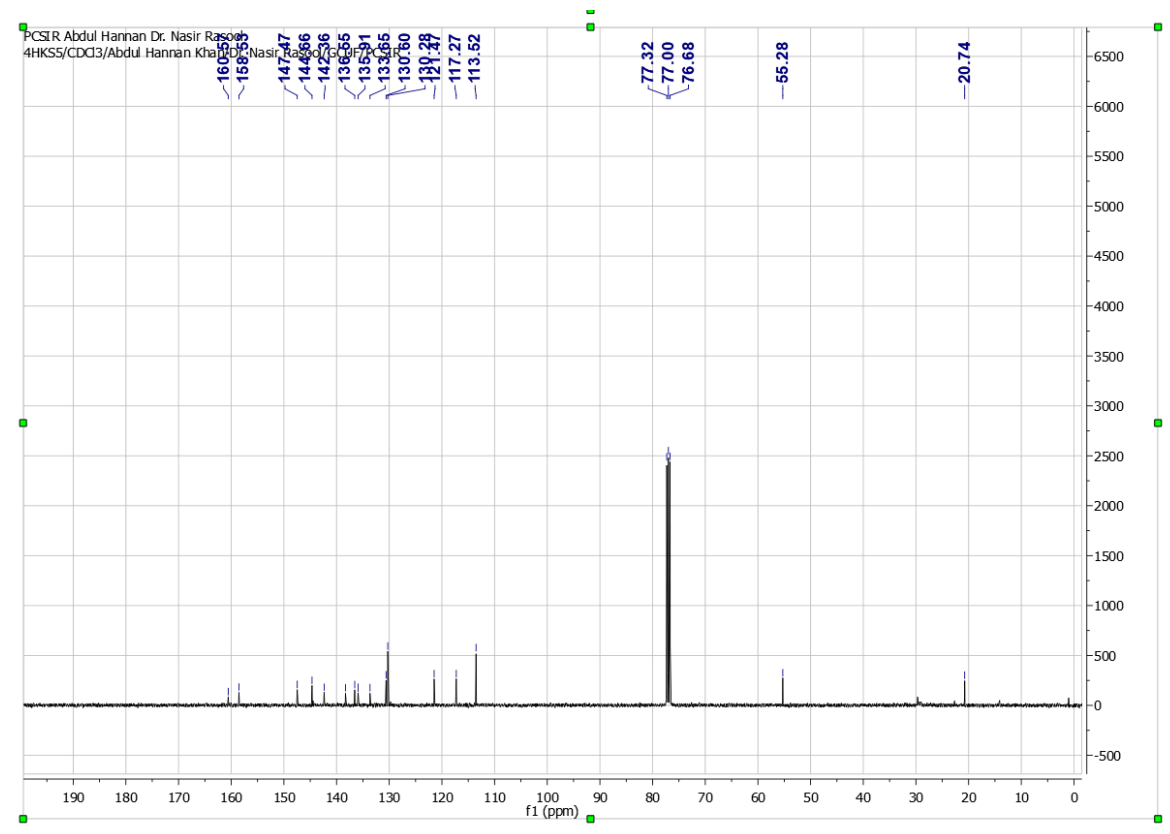


Figure S17: HNMR Methyl 2'-methyl-4'-(pyrazine-2-carboxamido)-[1,1'-biphenyl]-4-carboxylate (5d)



**Figure S18: <sup>13</sup>CNMR Methyl 2'-methyl-4'-(pyrazine-2-carboxamido)-[1,1'-biphenyl]-4-carboxylate (5d)**