

Supplementary Information

Synthesis, spectral QSAR, molecular docking, DFT, ADMET studies and anti-microbial activity evaluation of some benzodioxin pyrazolines

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Table S1. Binding affinities of the investigated and reference compounds with 7S54, 9R2Z, 5HW8 receptors.

Table S2 Binding conformation of all pyrazolines against *Streptococcus aureus*-7S54, *Escherichia coli*- 9R2Z and *Candida albicans*-5HW8receptorreferred with ChloramphenicolandFluconazole standards.

Table S3 Radar pictures of bioavailability of synthesized pyrazolines.

Figures S1-S18 NMR spectra of synthesized pyrazolines

Figures S19-S24 Mass spectra and its fragment patterns of pyrazolines **4**, **8** and **9**.

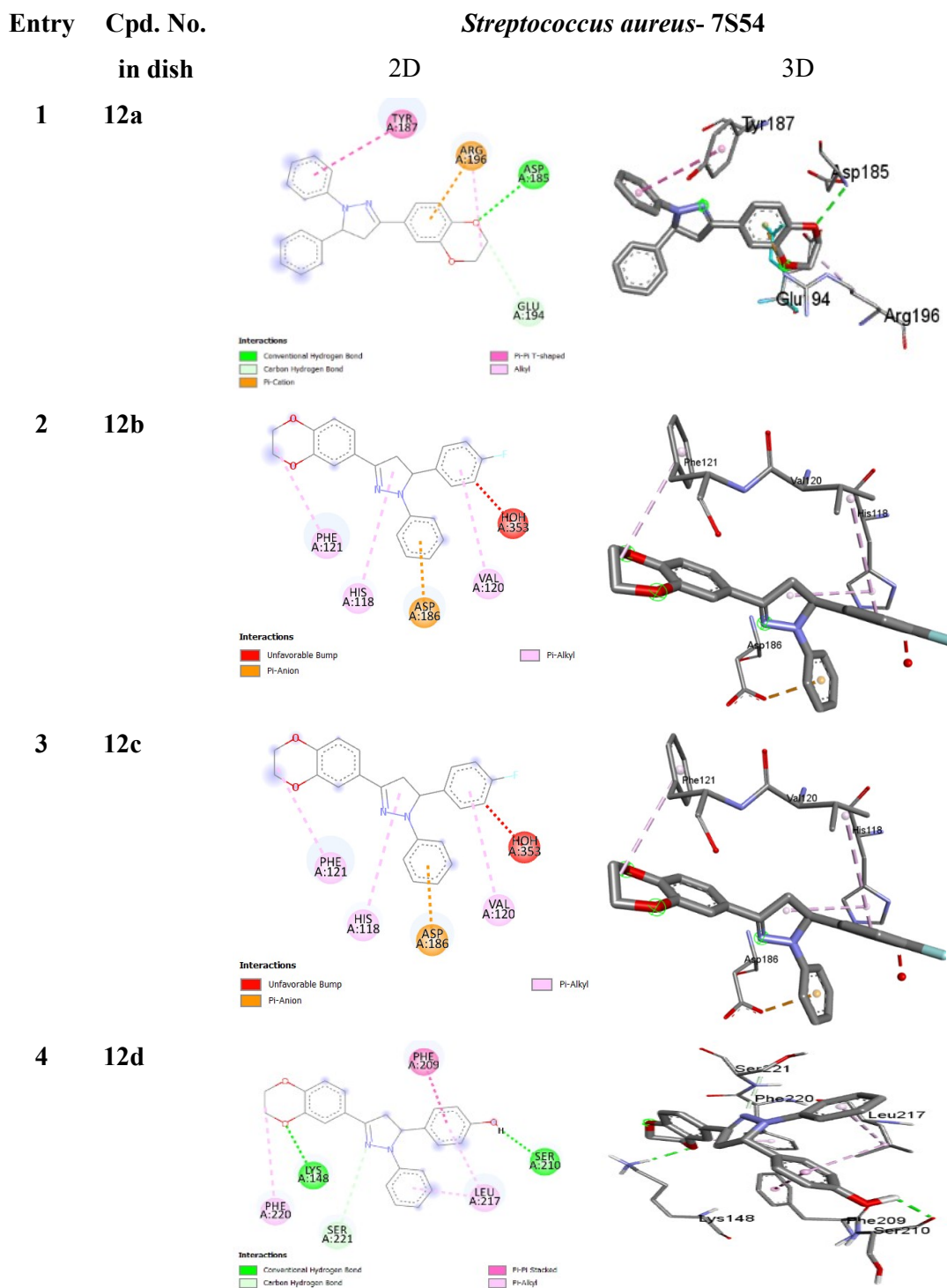
Table S1 - Binding affinities of the investigated and reference compounds with 7S54, 9R2Z, 5HW8 receptors.

Entry	Compound number	Antimicrobial stains	Binding affinity (kcal/mol)
<i>Streptococcus aureus-7S54</i>			
1	12a		-7.85
2	12b		-6.71
3	12c		-6.26
4	12d		-7.77
5	12e		-6.81
6	12f		-7.68
7	12g		-7.18
8	12h		-7.83
9	12i		-7.02
Std.	<i>Chloramphenicol</i>		-4.72
<i>Escherichia coli-9R2Z</i>			
1	12a		-8.14
2	12b		-7.09
3	12c		-6.82
4	12d		-7.98
5	12e		-6.72
6	12f		-6.89
7	12g		-6.88
8	12h		-7.96
9	12i		-7.32
Std.	<i>Chloramphenicol</i>		-4.19

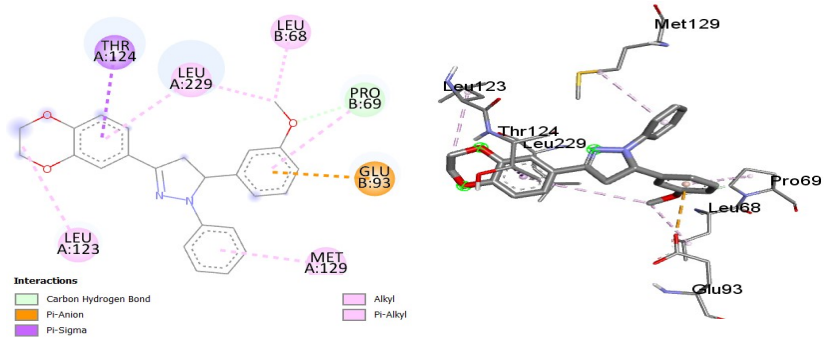
Candida albicans-5HW8

1	12a	-8.14
2	12b	-7.09
3	12c	-6.82
4	12d	-7.98
5	12e	-6.72
6	12f	-6.89
7	12g	-6.88
8	12h	-7.96
9	12i	-7.32
Std.	<i>Fluconazole</i>	-8.14

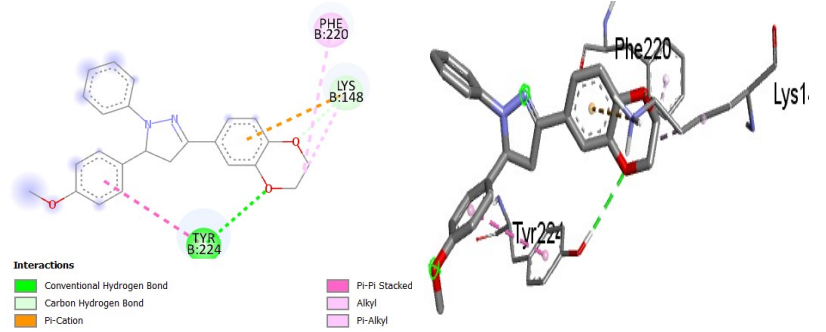
Table S2- Binding conformation of all pyrazolines against *Streptococcus aureus*- 7S54, *Escherichia coli*- 9R2Z and *Candida albicans*- 5HW8receptor.referred with *Chloramphenicol* and Fluconazole standards.



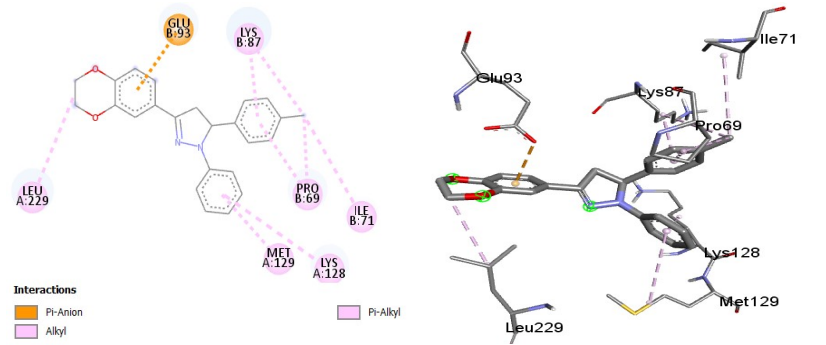
5 12e



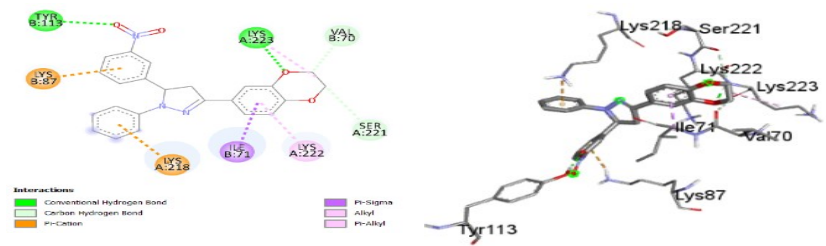
6 12f



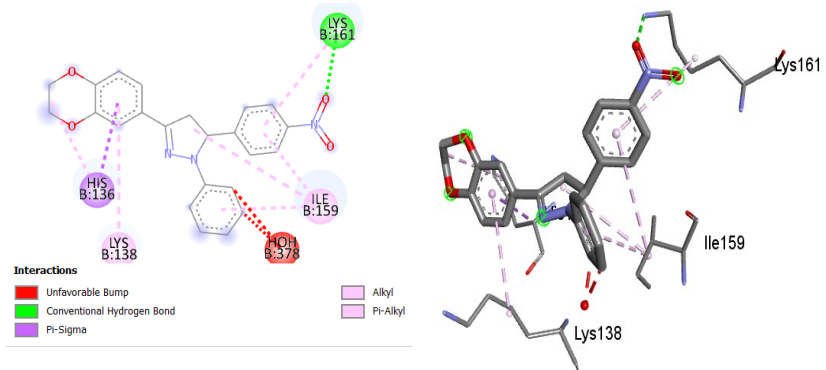
7 12g



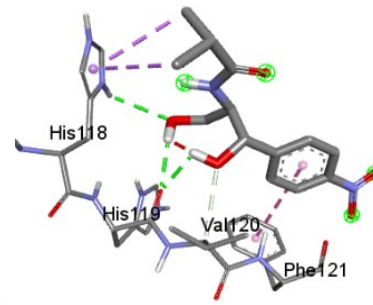
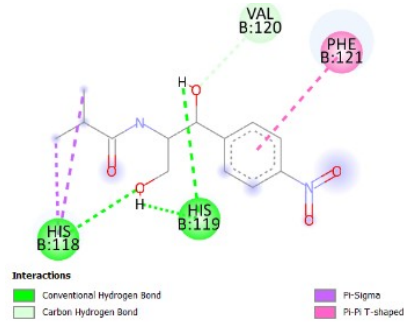
8 12h



9 12i

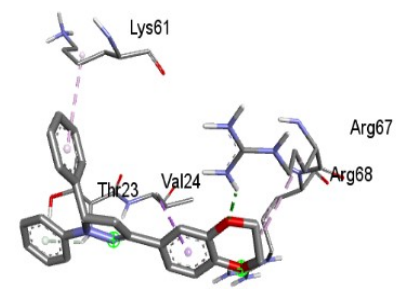
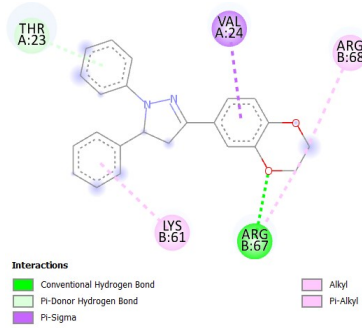


Chloramphenicol
(Ref. drug)

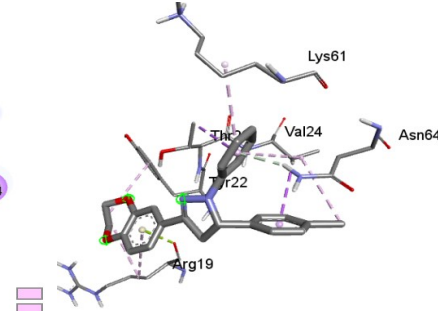
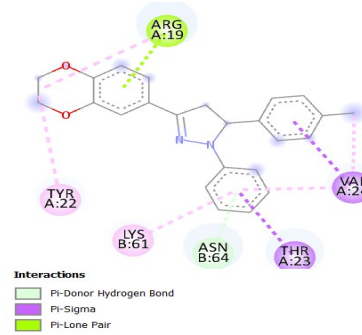


Escherichia coli- 9R2Z Receptor

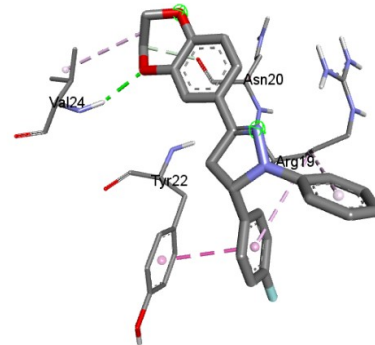
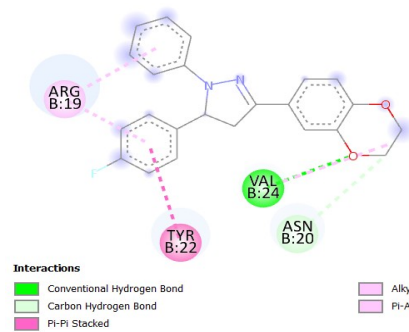
1 12a



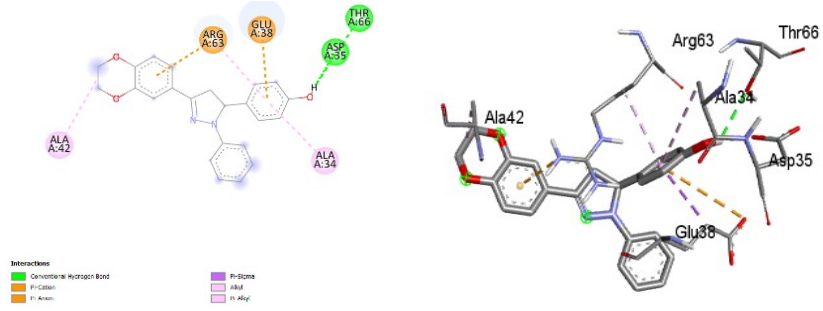
2 12b



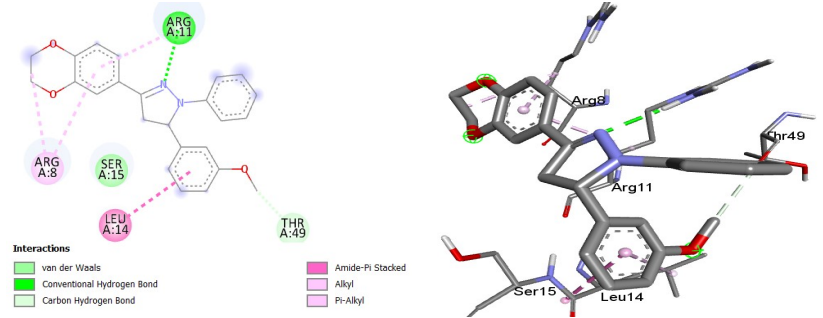
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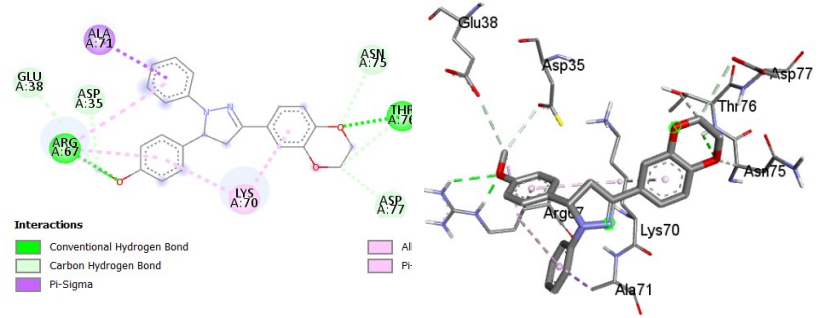
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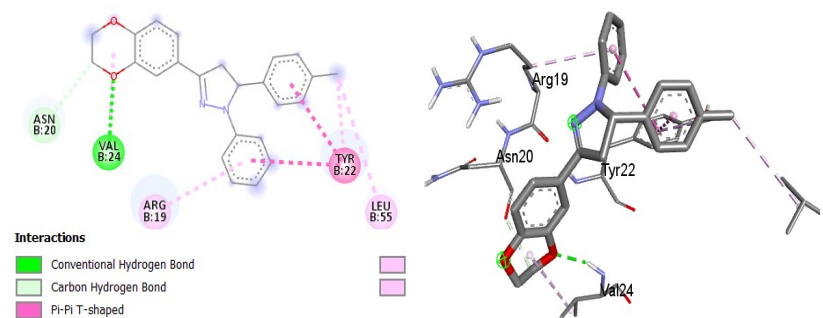
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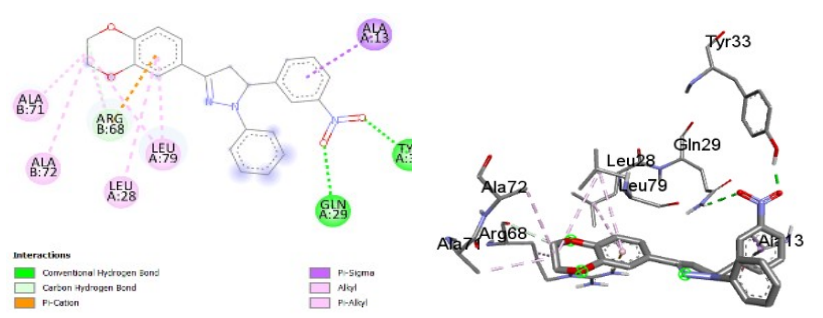
6 12f



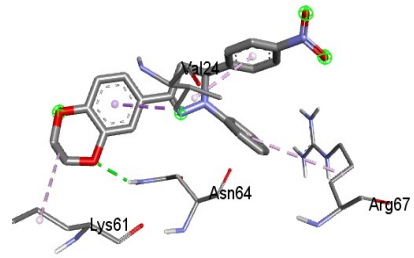
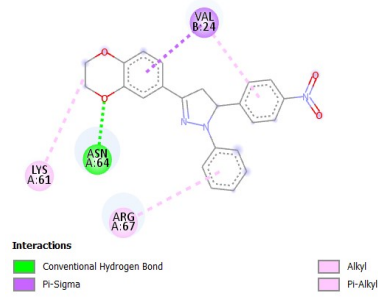
7 12g



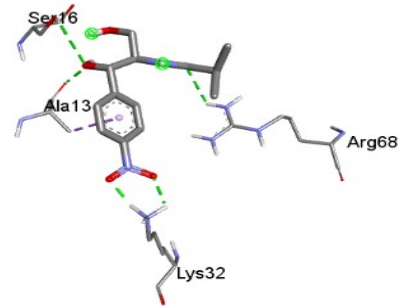
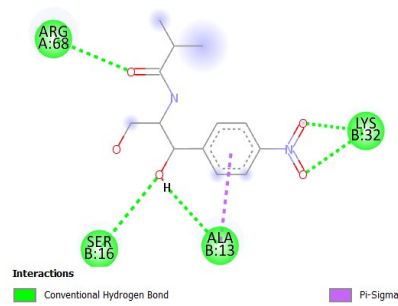
8 12h



9 12i

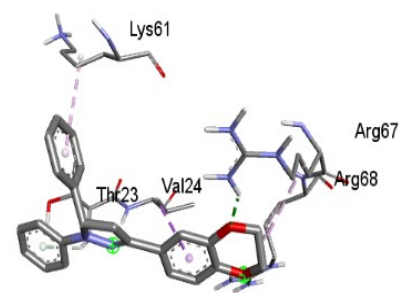
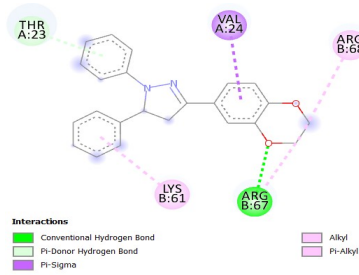


Chloramphenicol
(Ref. drug)

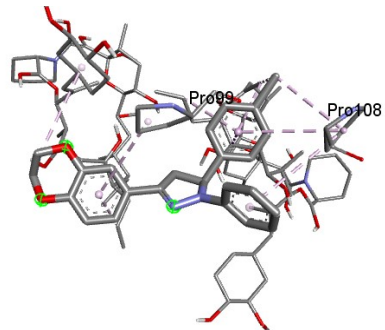
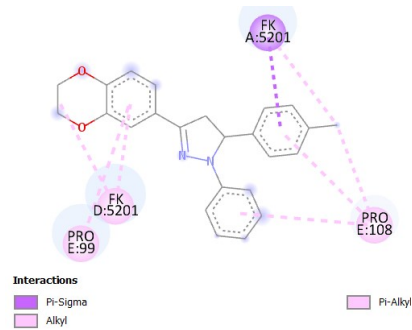


Candida albicans- 5HW8 Receptor

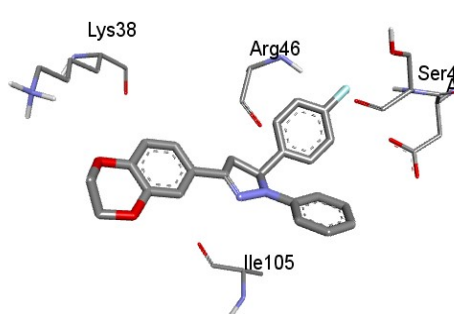
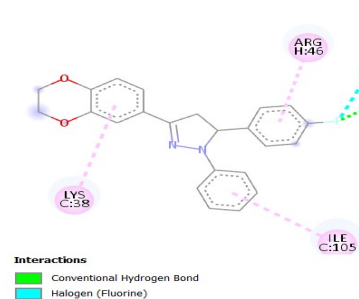
1 12a



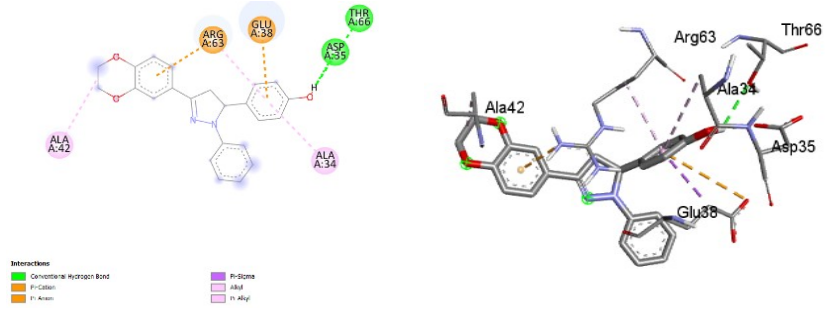
2 12b



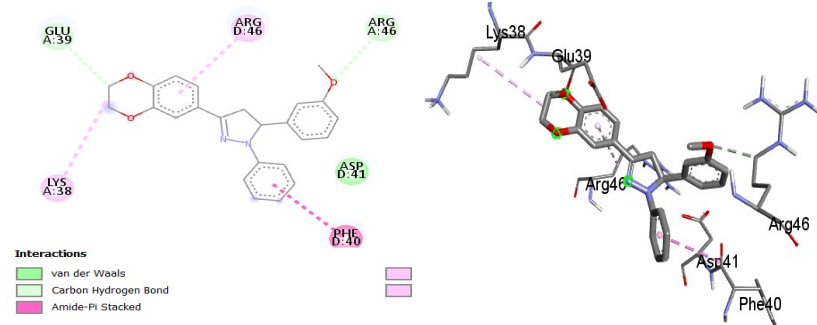
3 12c



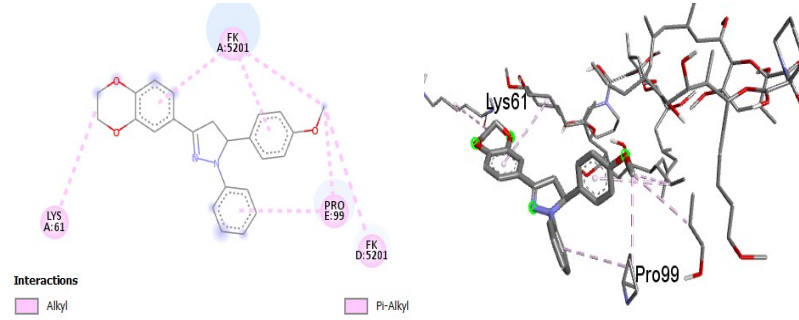
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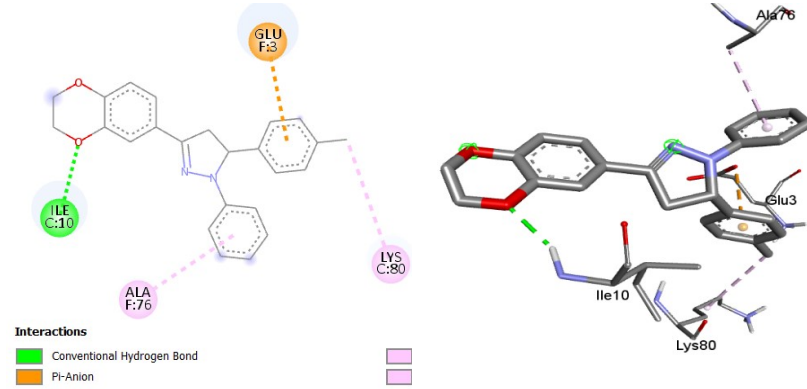
5 12e



6 12f



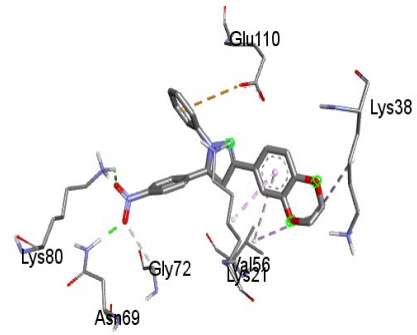
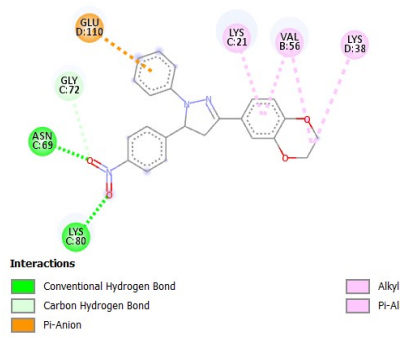
7 12g



8 12h



9 12i



Fluconazole(Ref. drug)

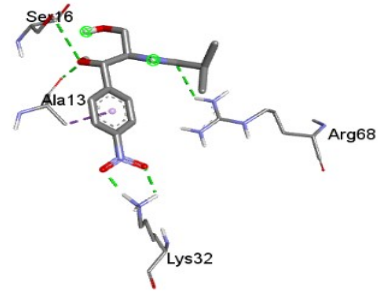
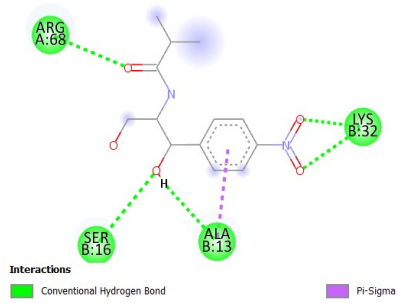
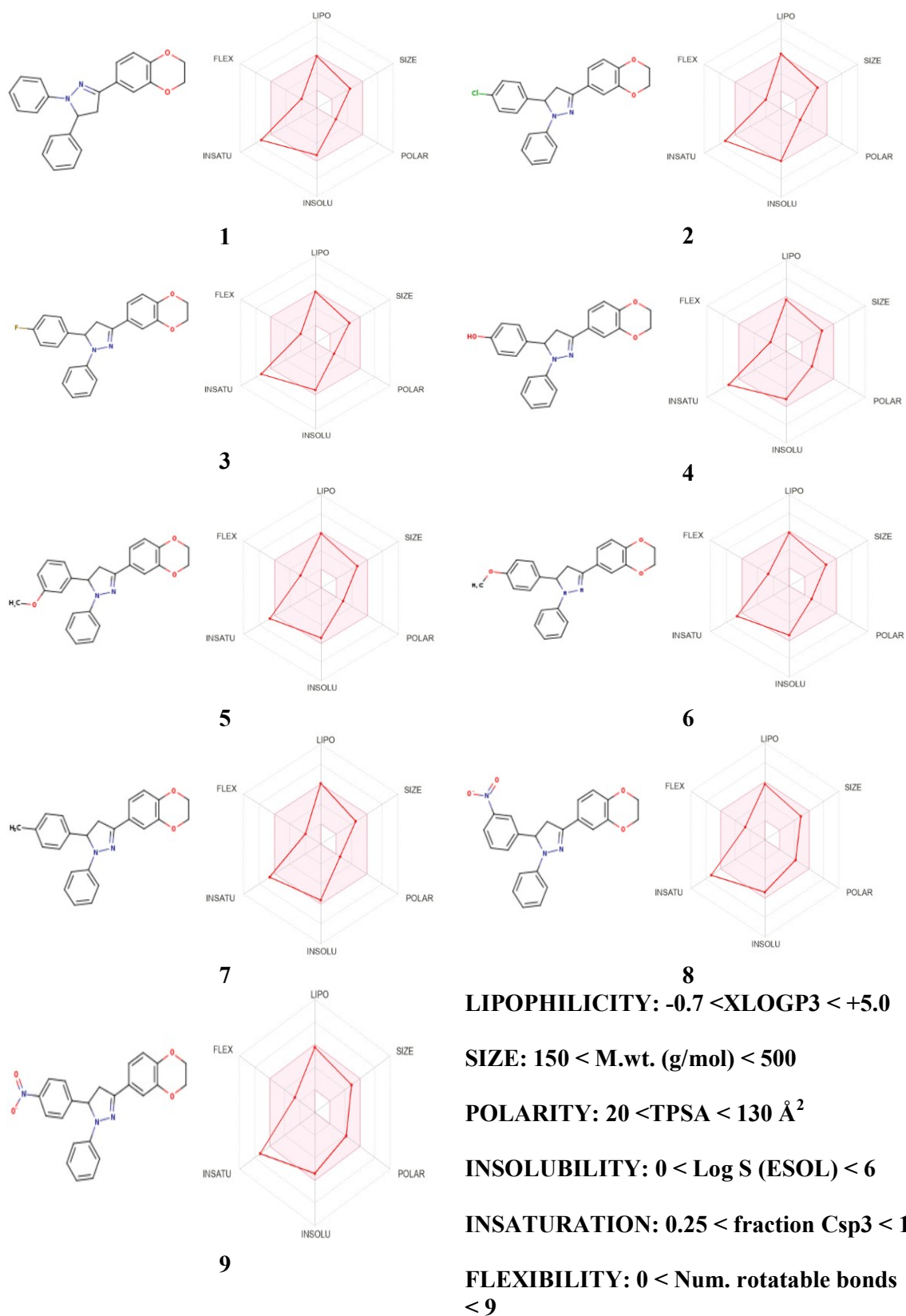


Table S3- Radar pictures of bioavailability of synthesized pyrazolines.



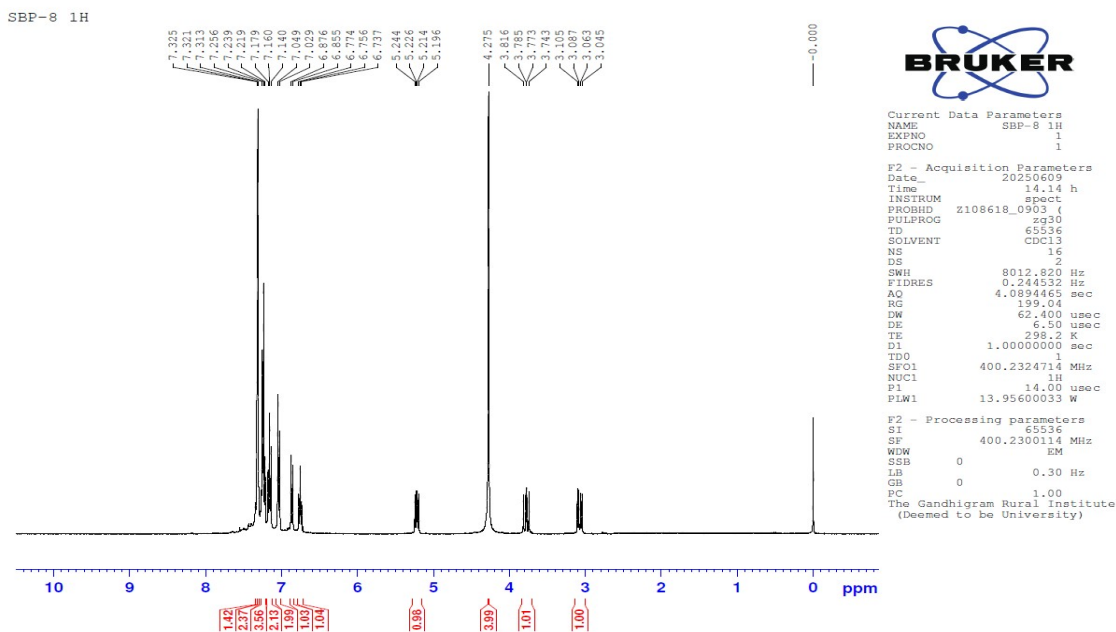


Figure S1- ¹H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-phenyl-1H-pyrazole (1)

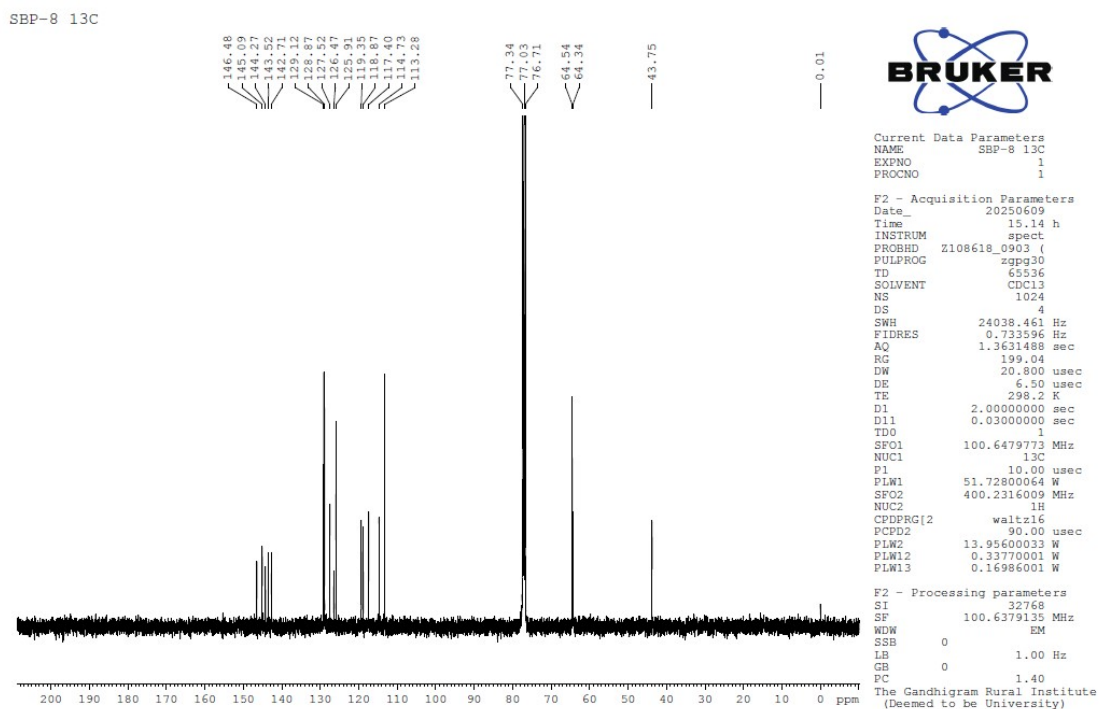


Figure S2- ¹³C NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-phenyl-1H-pyrazole(1)

GT SBS 40H

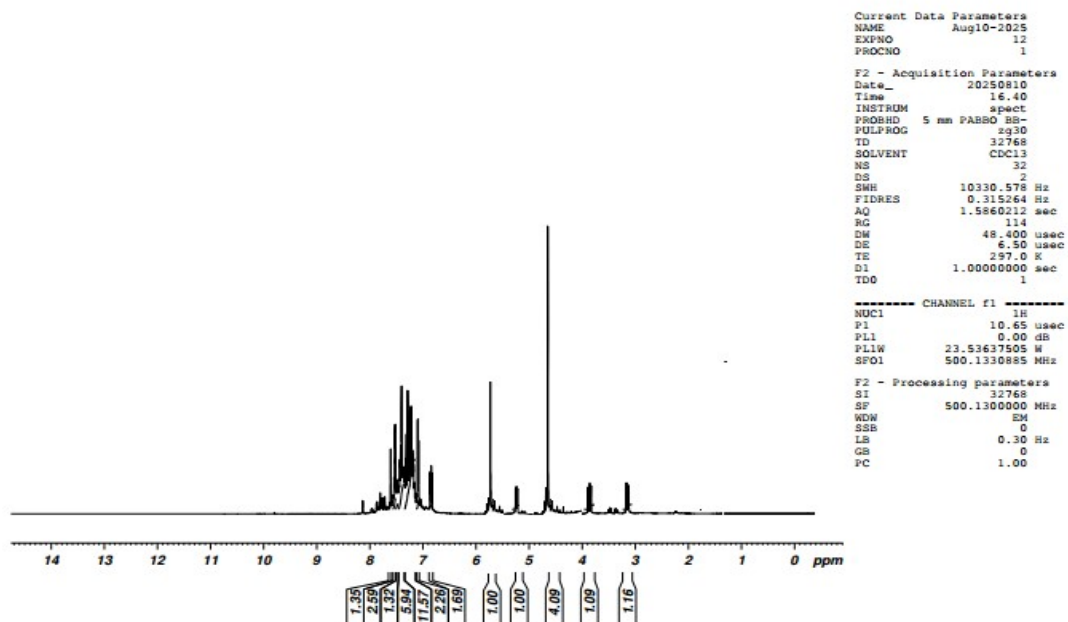


Figure S7- ^1H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-hydroxyphenyl)-1H-pyrazole (4)

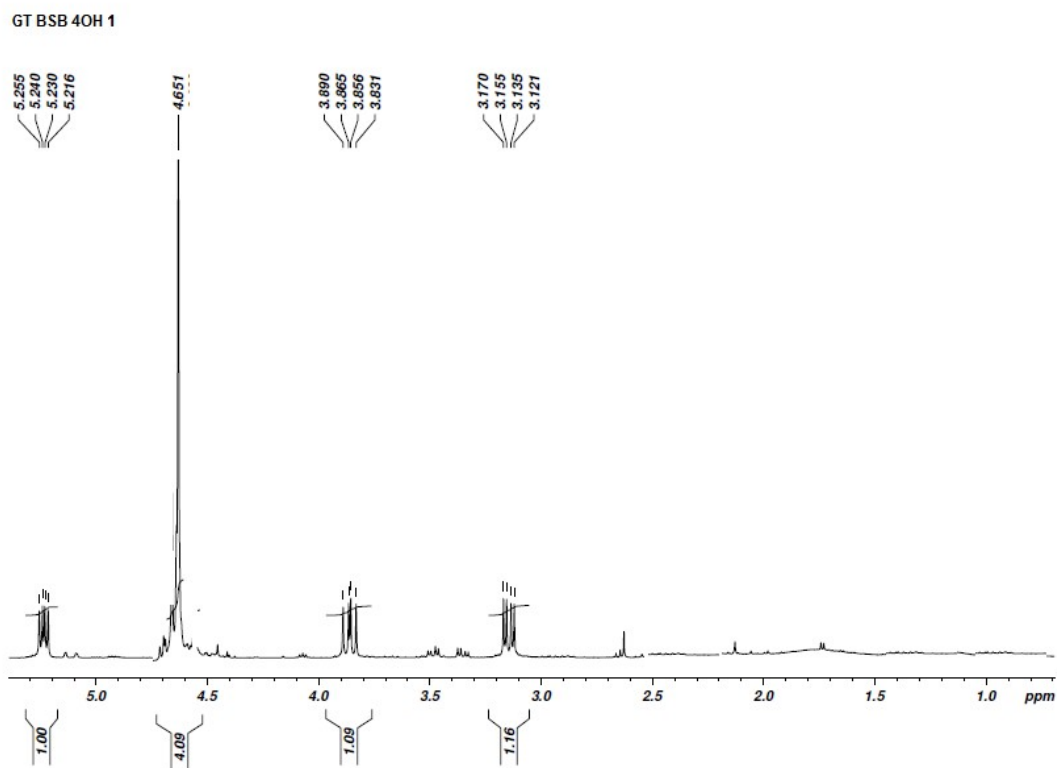


Figure S7a- ^1H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-hydroxyphenyl)-1H-pyrazole (4)-Expanded

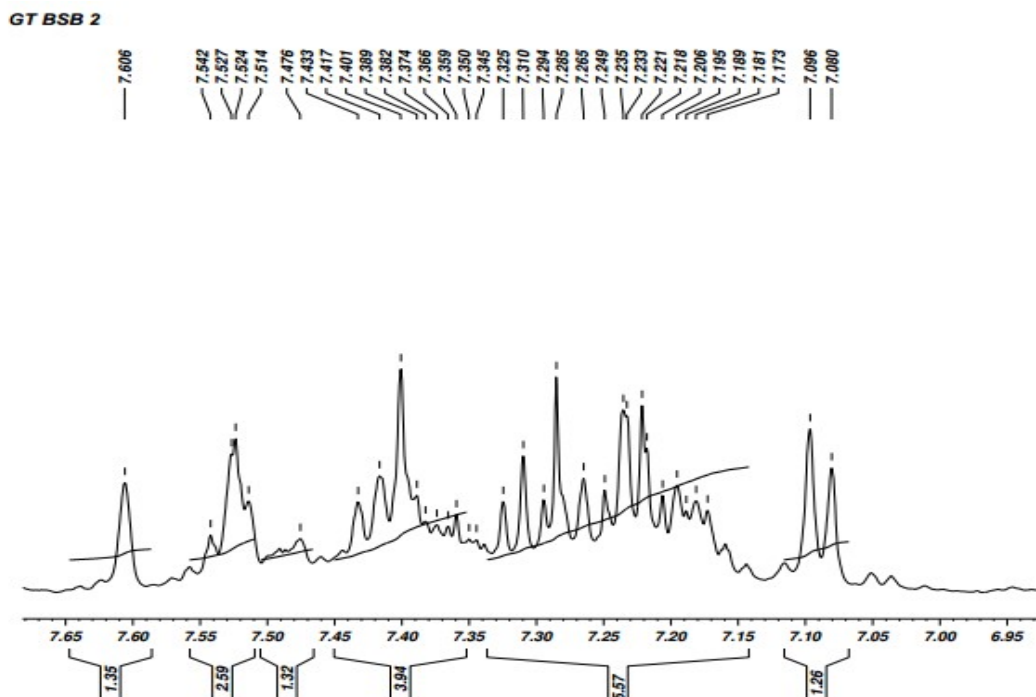


Figure S7b- ^1H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-hydroxyphenyl)-1H-pyrazole (**4**)-Expanded

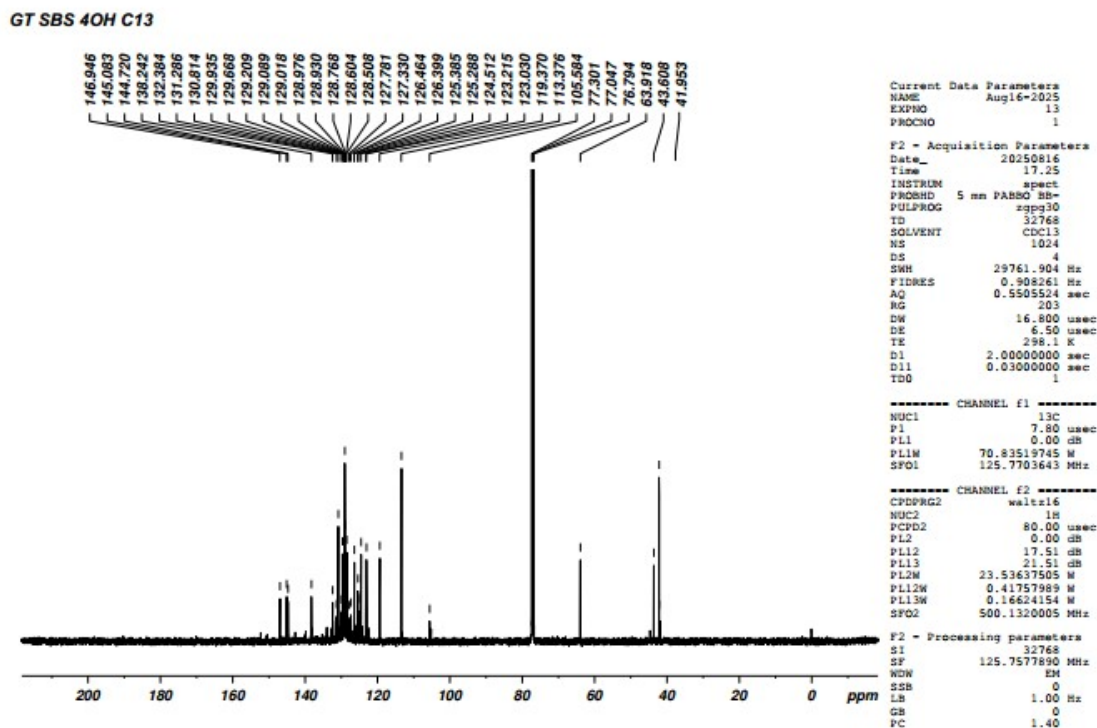


Figure S8- ^{13}C NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-hydroxyphenyl)-1H-pyrazole (**4**)

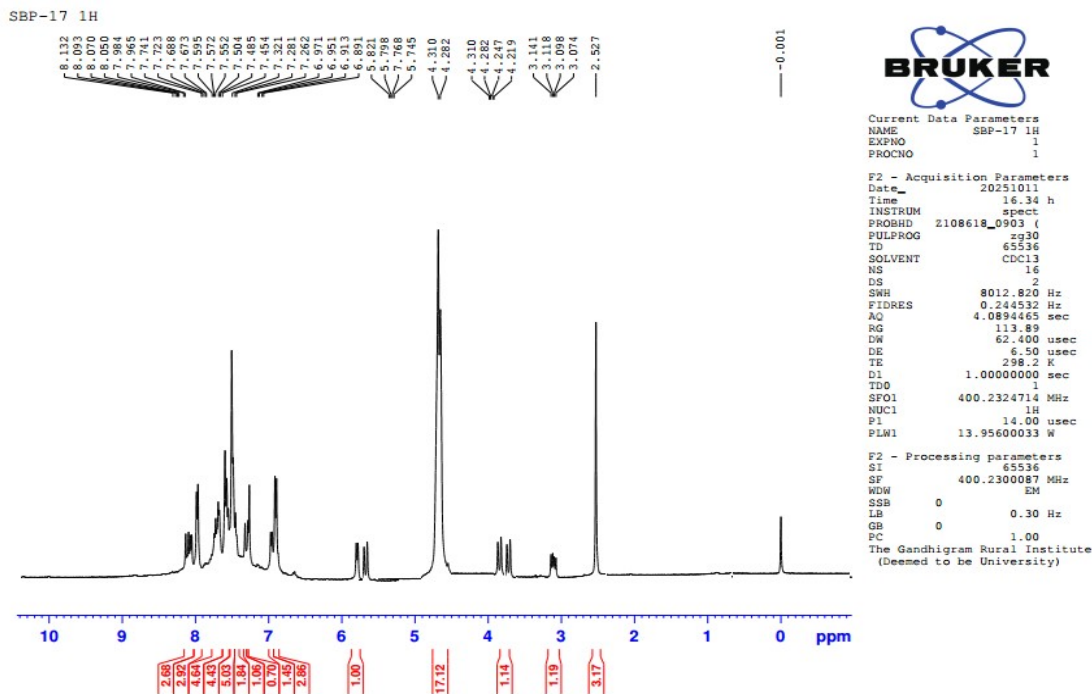


Figure S9- ¹H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(3-methoxyphenyl)-1H-pyrazole (5)

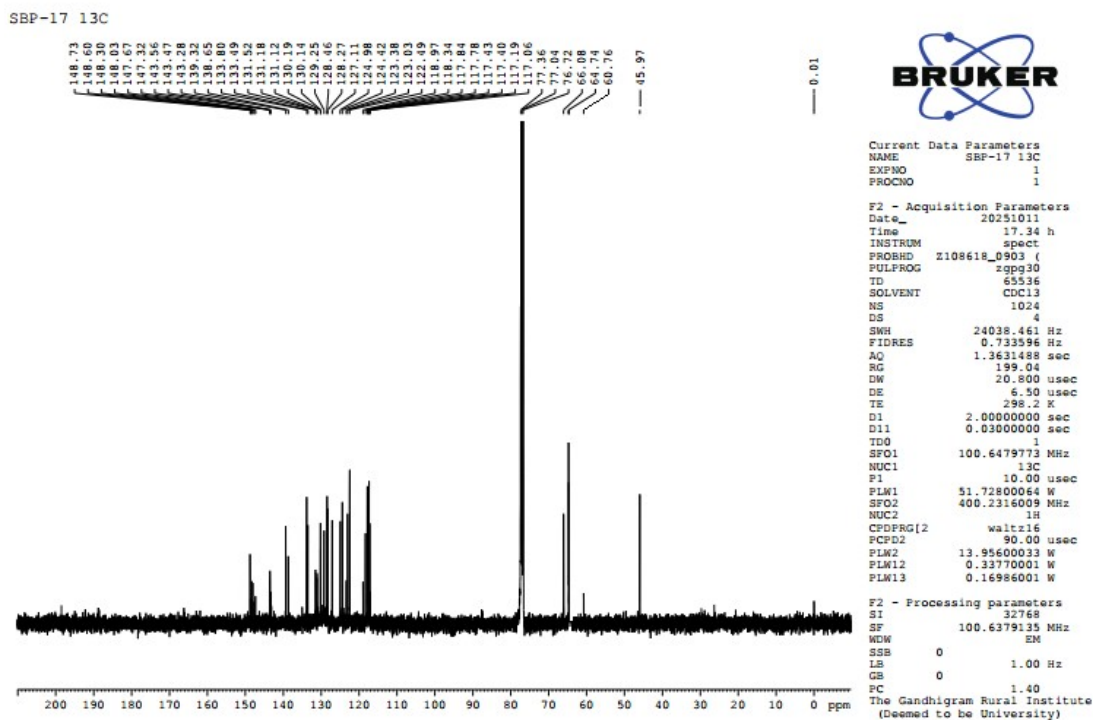


Figure S10- ¹³C NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(3-methoxyphenyl)-1H-pyrazole (5)

GT-SBS 4-OMe

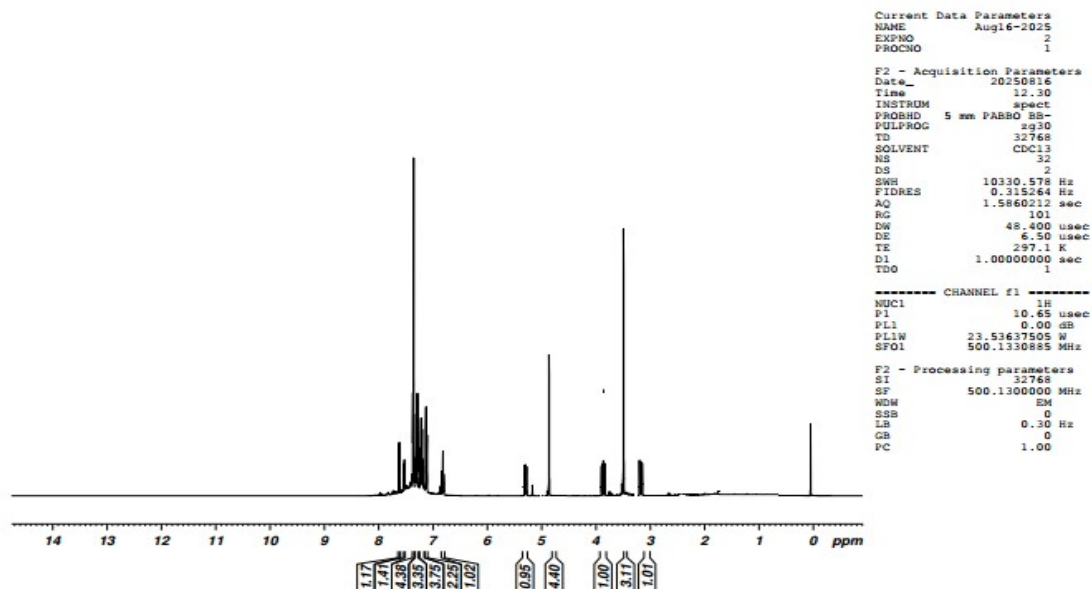


Figure S11- ¹H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-methoxyphenyl)-1H-pyrazole (6)

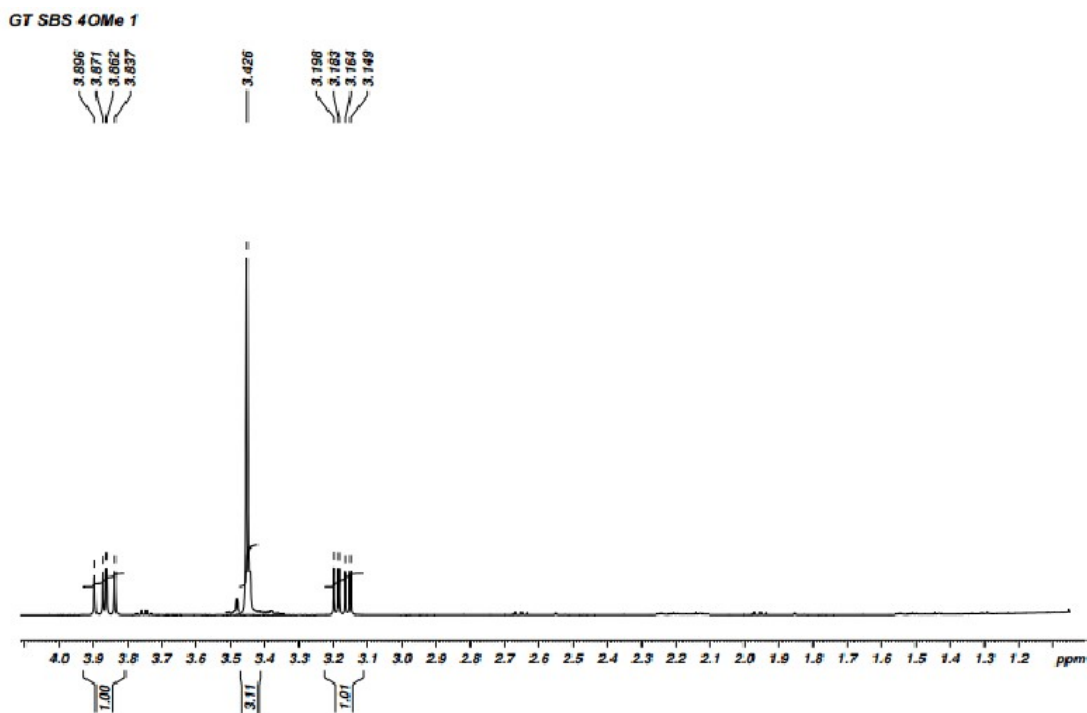


Figure S11a- ¹H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-methoxyphenyl)-1H-pyrazole (6)-Expanded

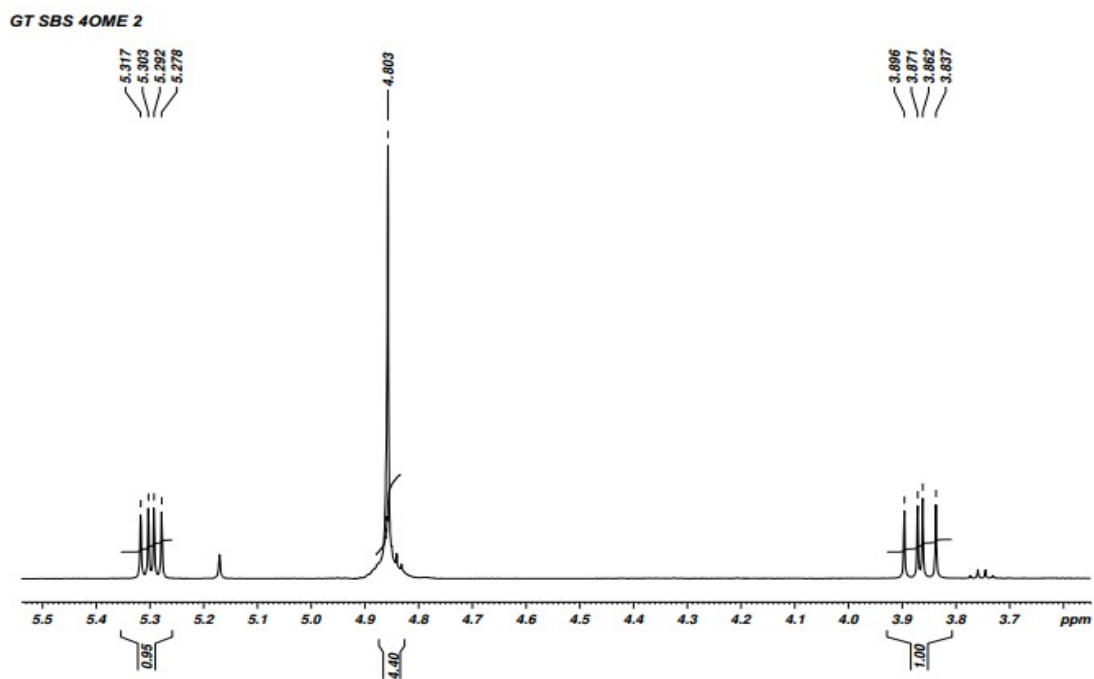


Figure S11b- ^1H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-methoxyphenyl)-1H-pyrazole (6)-Expanded

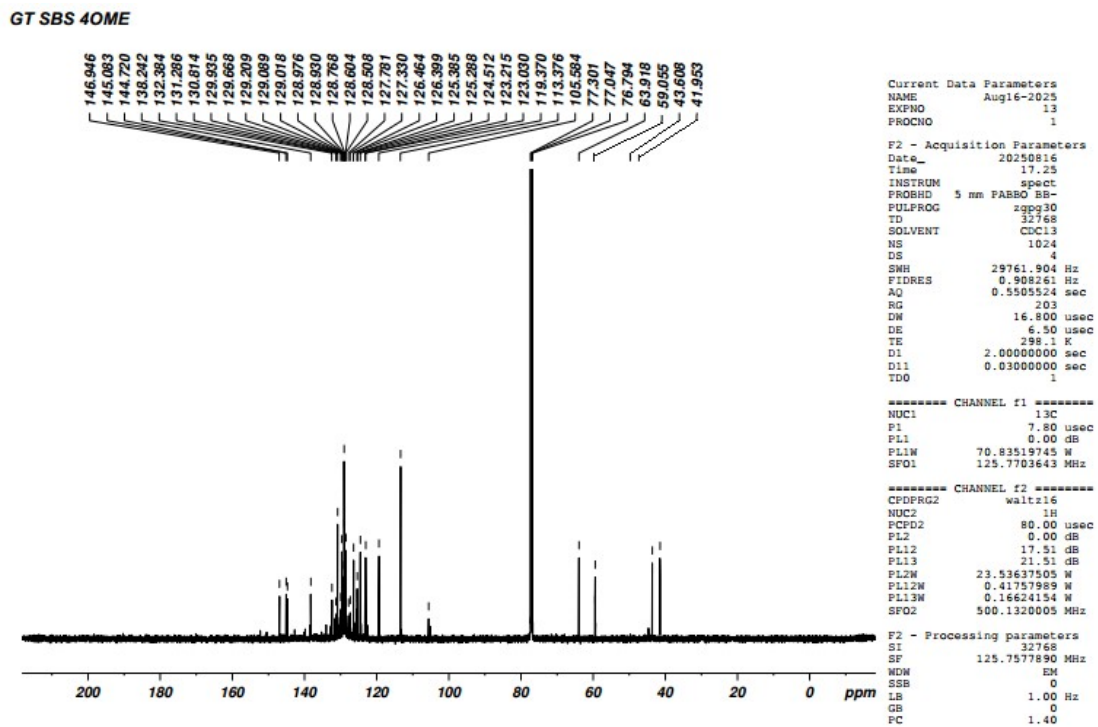


Figure S12- ^{13}C NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-methoxyphenyl)-1H-pyrazole (6)

GT-SBS 4Me

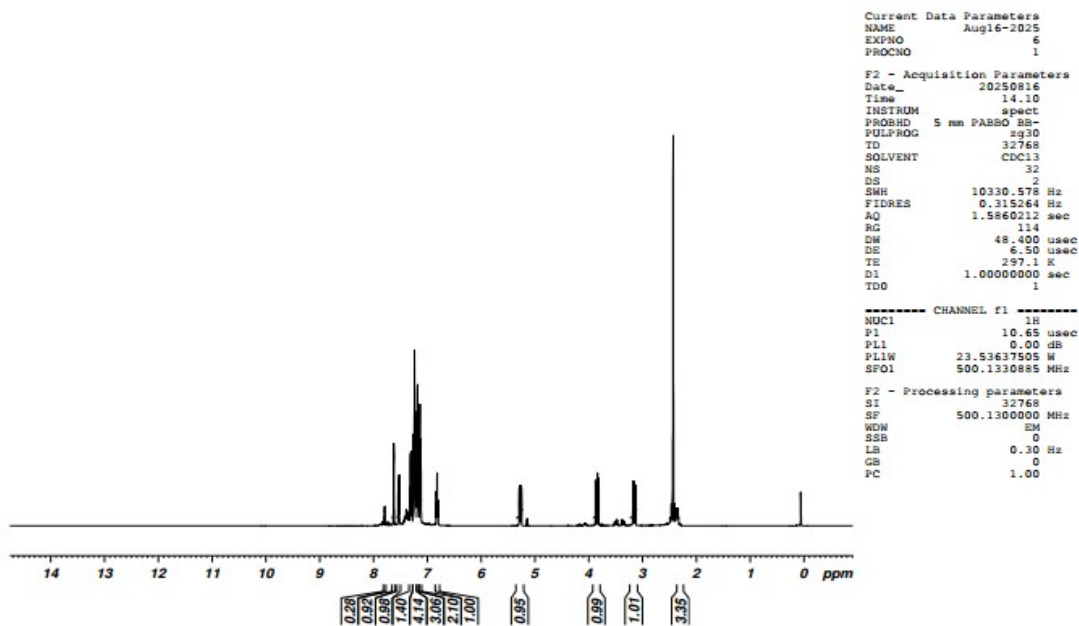


Figure S13- ¹H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-methylphenyl)-1H-pyrazole (7)

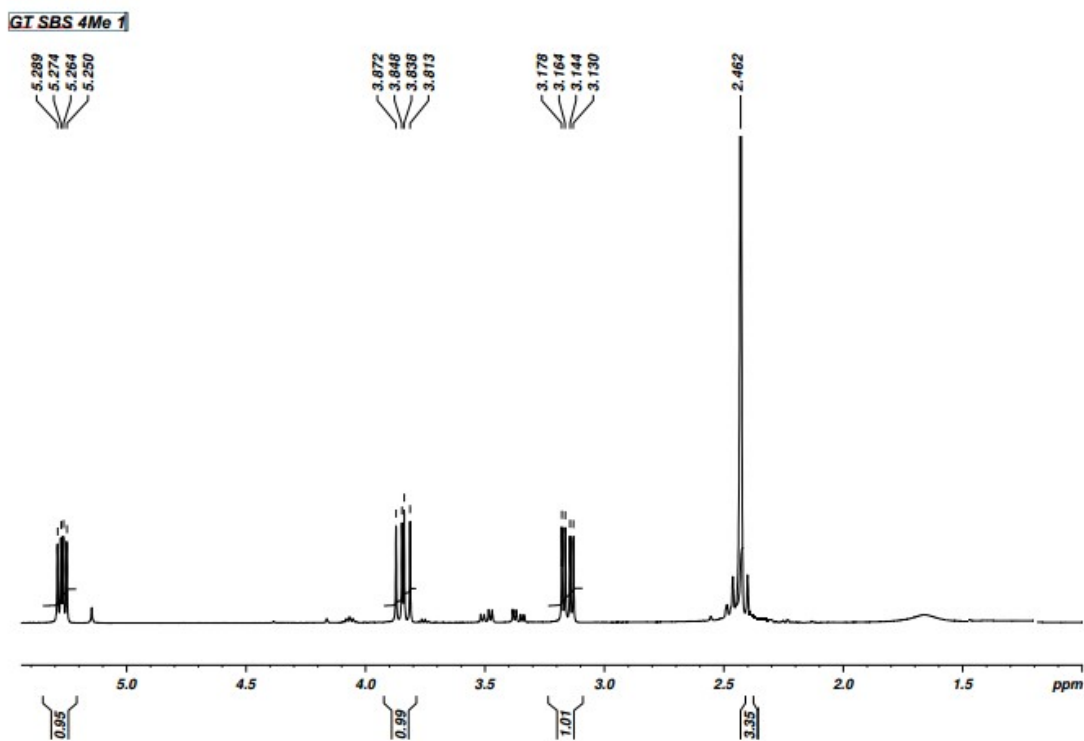


Figure S13a- ¹H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-methylphenyl)-1H-pyrazole (7)-Expanded

GT-SBS 4Me 2

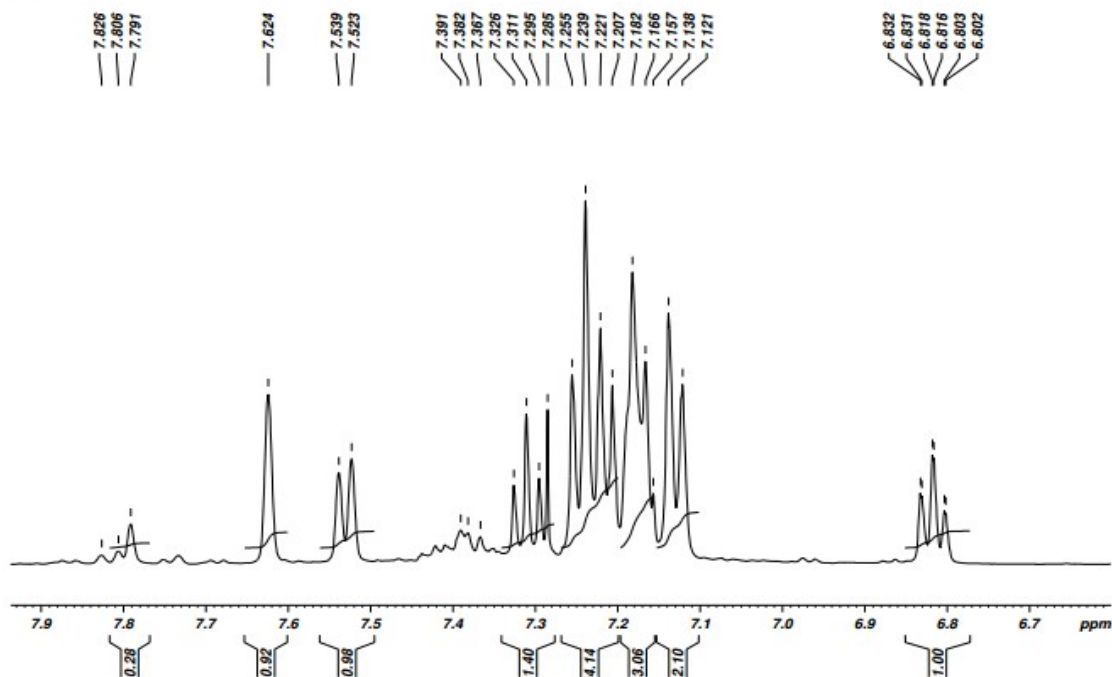


Figure S13b- ^1H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-methylphenyl)-1*H*-pyrazole (7)-Expanded

GT-SBS 4Me

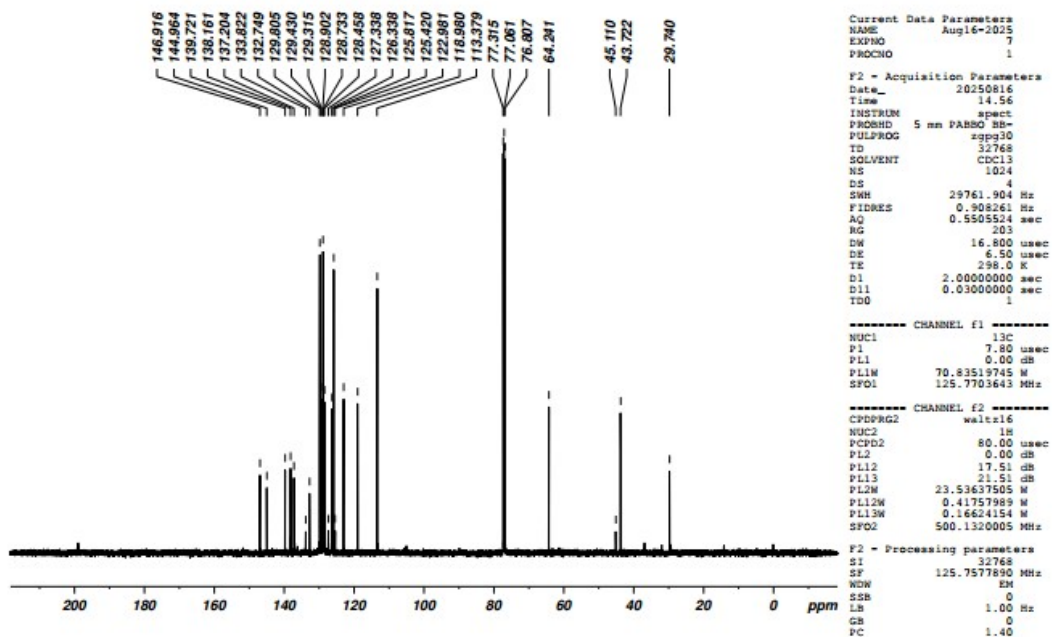


Figure S14- ^{13}C NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-methylphenyl)-1*H*-pyrazole (7)

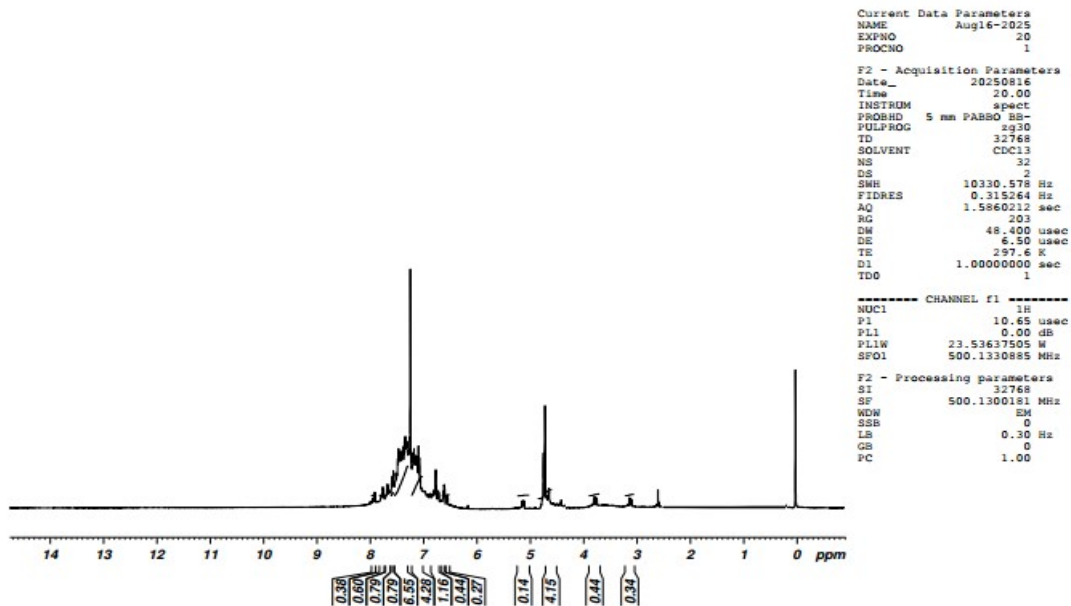


Figure S15- ¹H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(3-nitrophenyl)-1*H*-pyrazole (**8**)

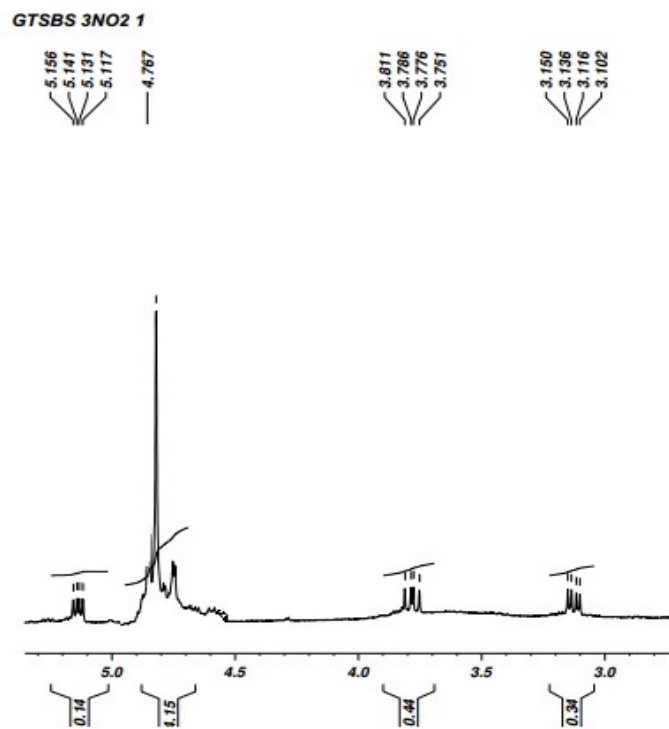


Figure S15a- ¹H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(3-nitrophenyl)-1*H*-pyrazole (**8**)-Expanded

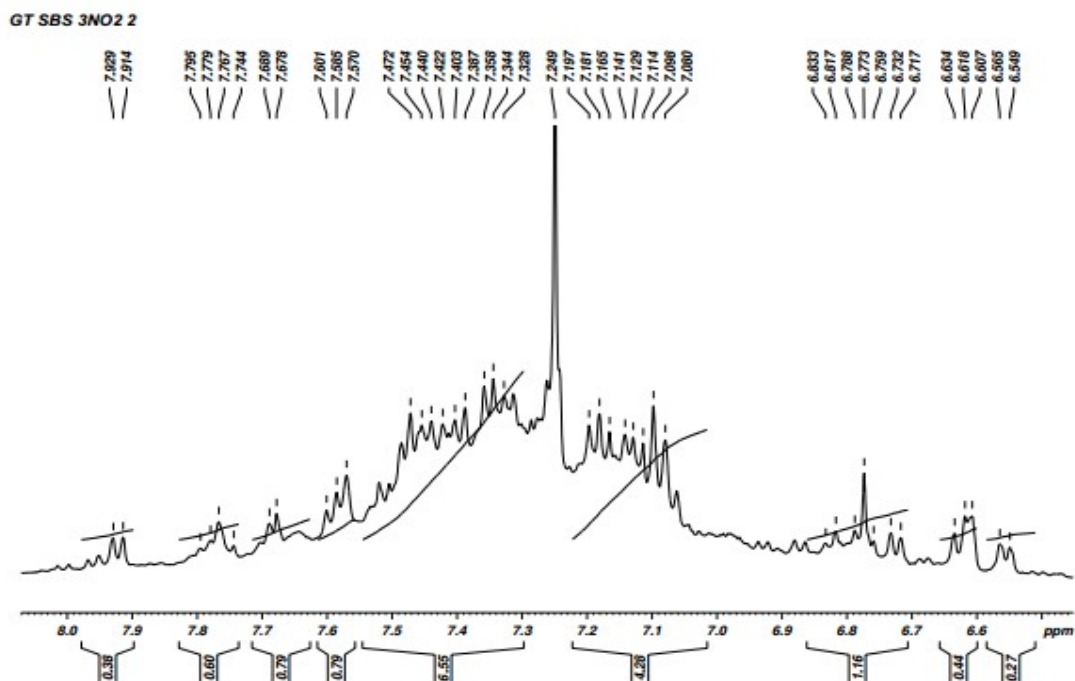


Figure S15b- ^1H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(3-nitrophenyl)-1*H*-pyrazole (**8**)-Expanded

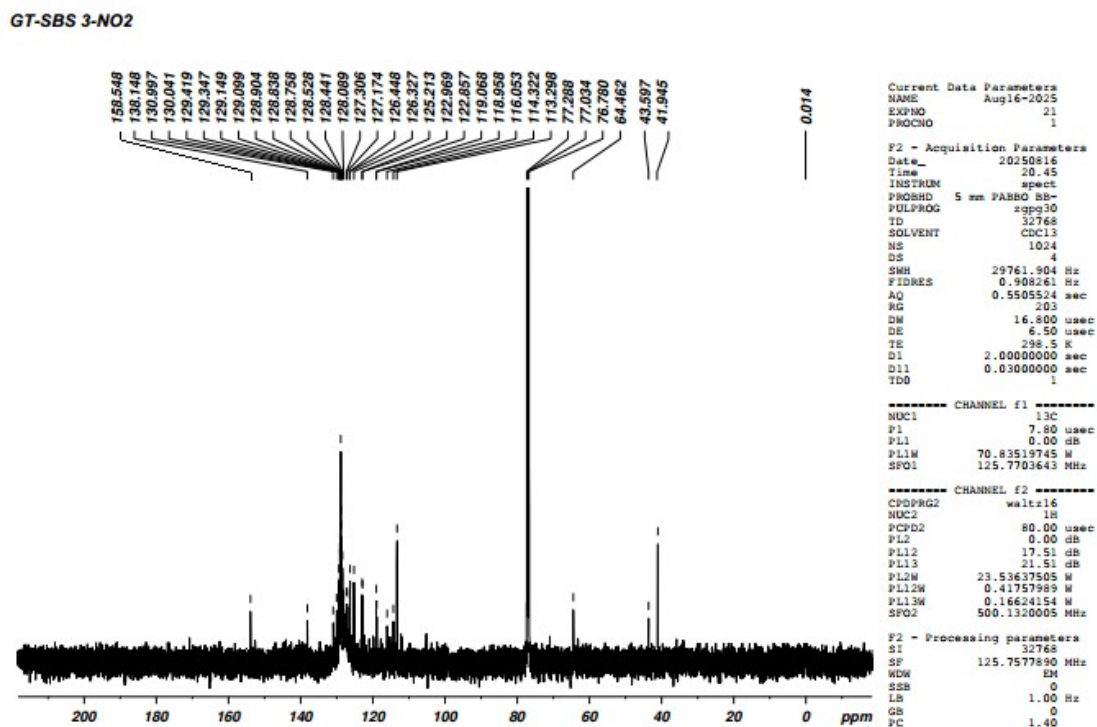


Figure S16- ^{13}C NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(3-nitrophenyl)-1*H*-pyrazole (**8**)

GT BSB 4NO2

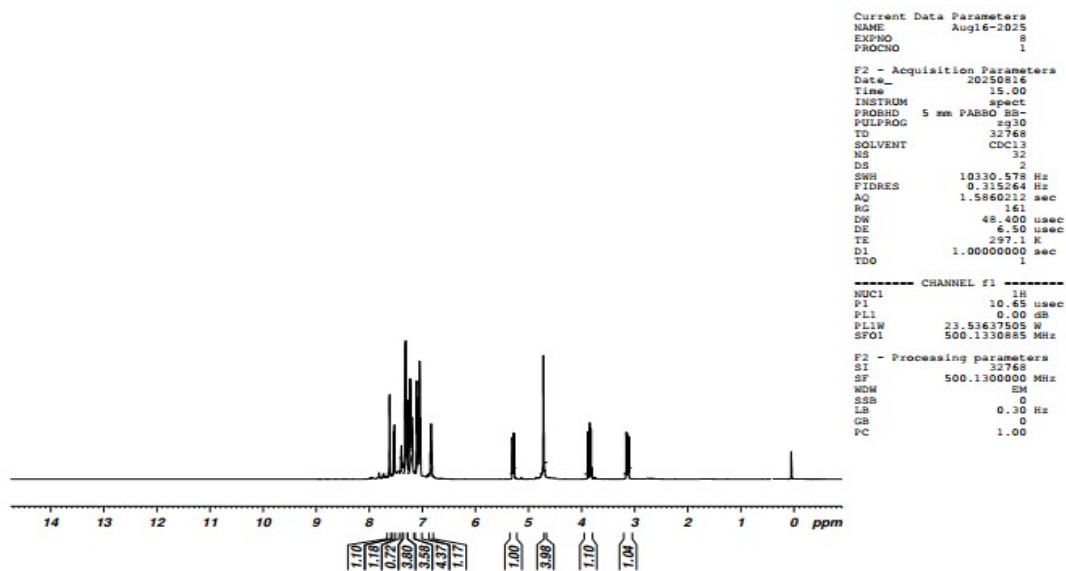


Figure S17- ^1H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-nitrophenyl)-1H-pyrazole (9)

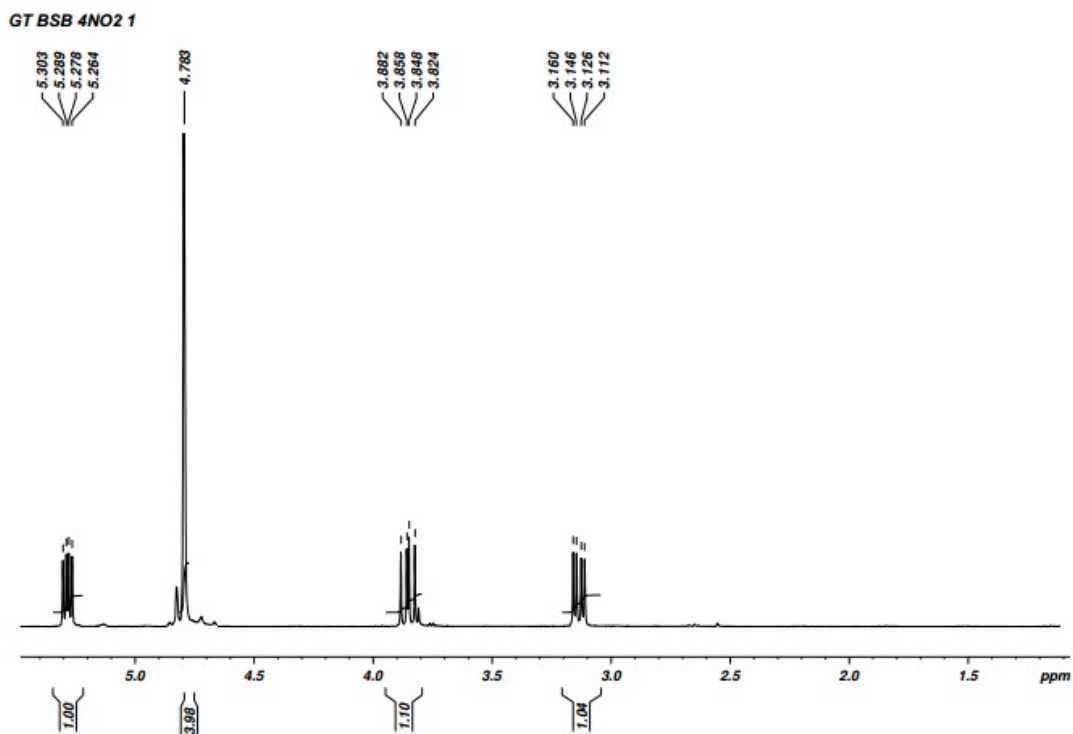


Figure S17a- ^1H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-nitrophenyl)-1H-pyrazole (9)-Expanded

GT SBS 4NO2 2

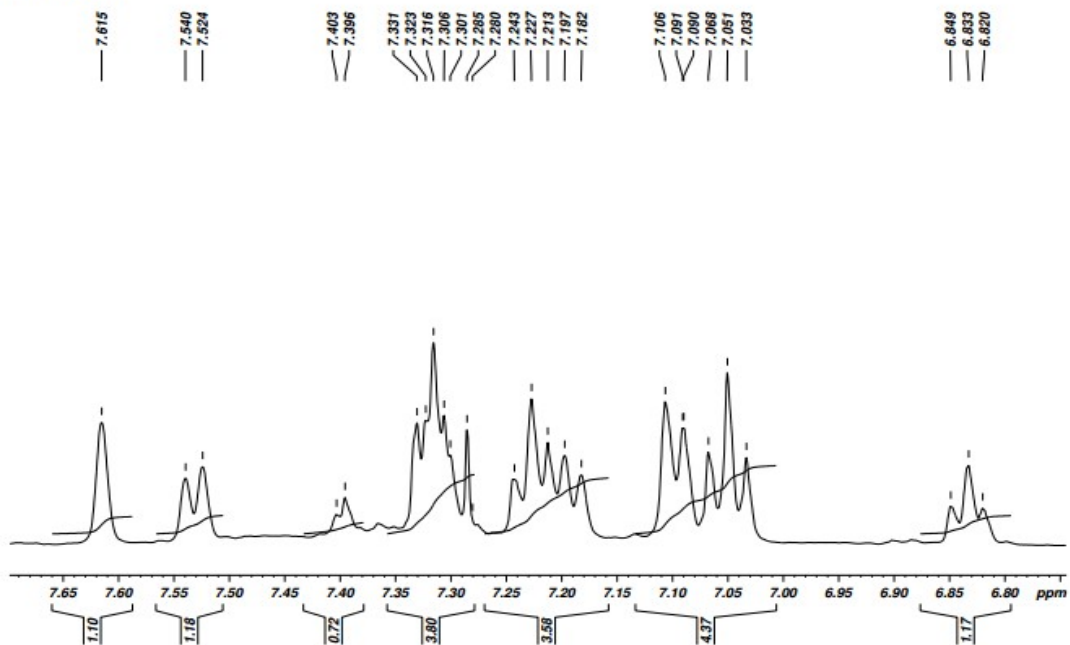


Figure S17b- ^1H NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-nitrophenyl-1*H*-pyrazole (9)-Expanded

GT-SBS 4NO2

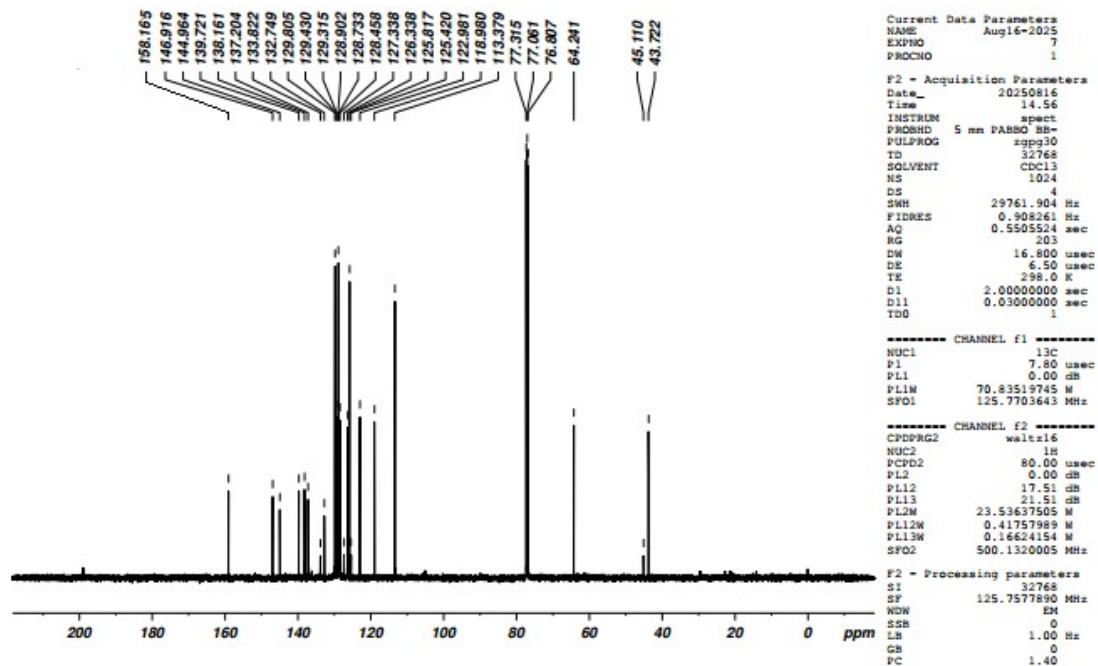


Figure S18- ^{13}C NMR spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-nitrophenyl-1*H*-pyrazole (9)

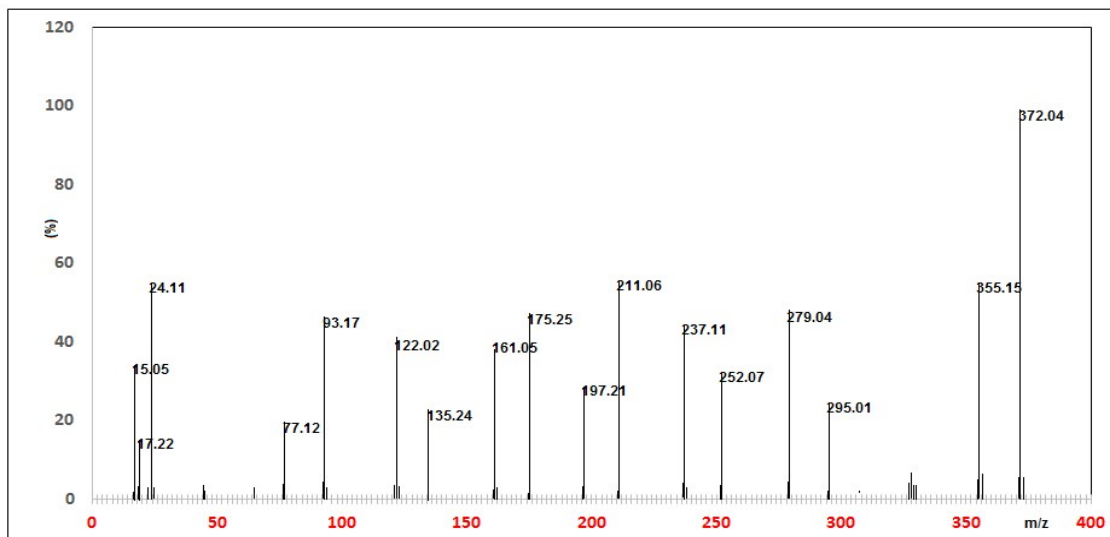


Figure 19- Mass spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-hydroxyphenyl)-1H-pyrazole (4)

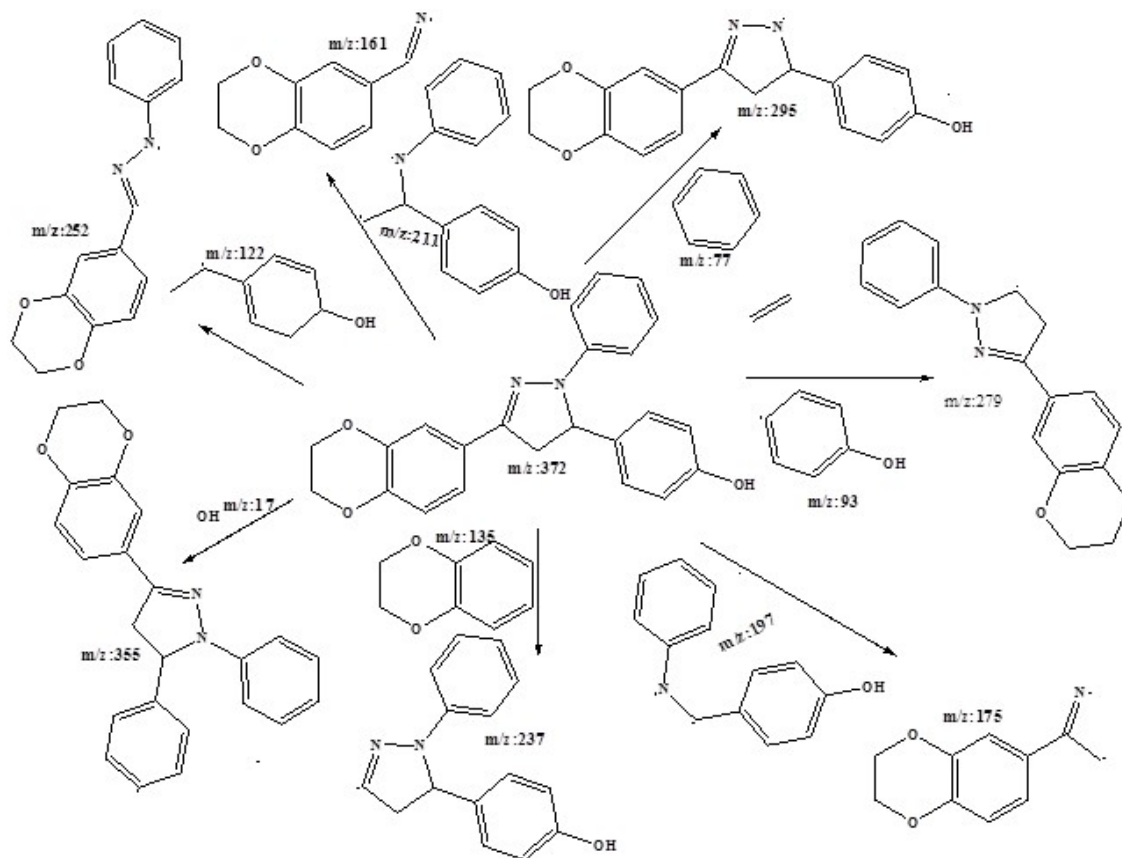


Figure 20- Mass fragment pattern of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-hydroxyphenyl)-1H-pyrazole (4)

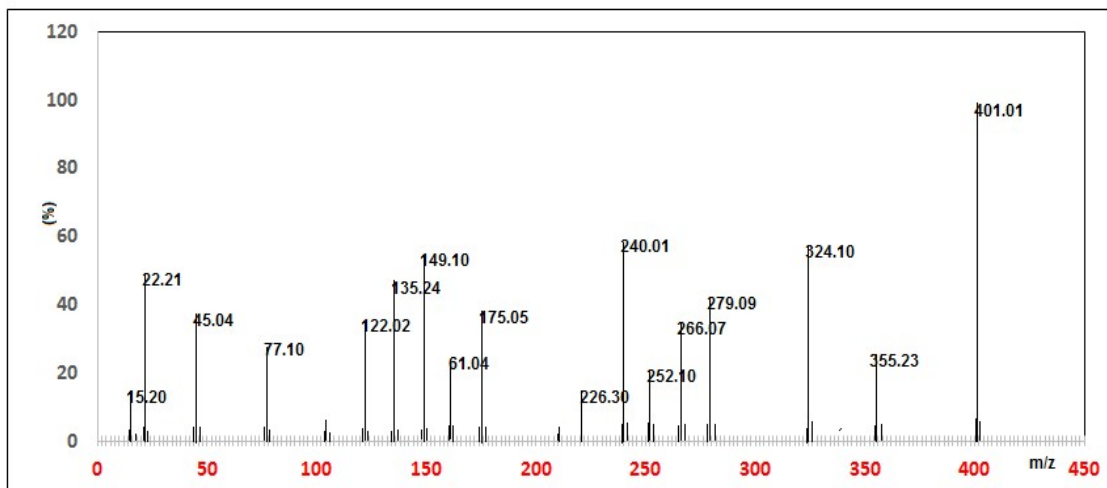


Figure 21- Mass spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(3-nitrophenyl)-1H-pyrazole (**8**)

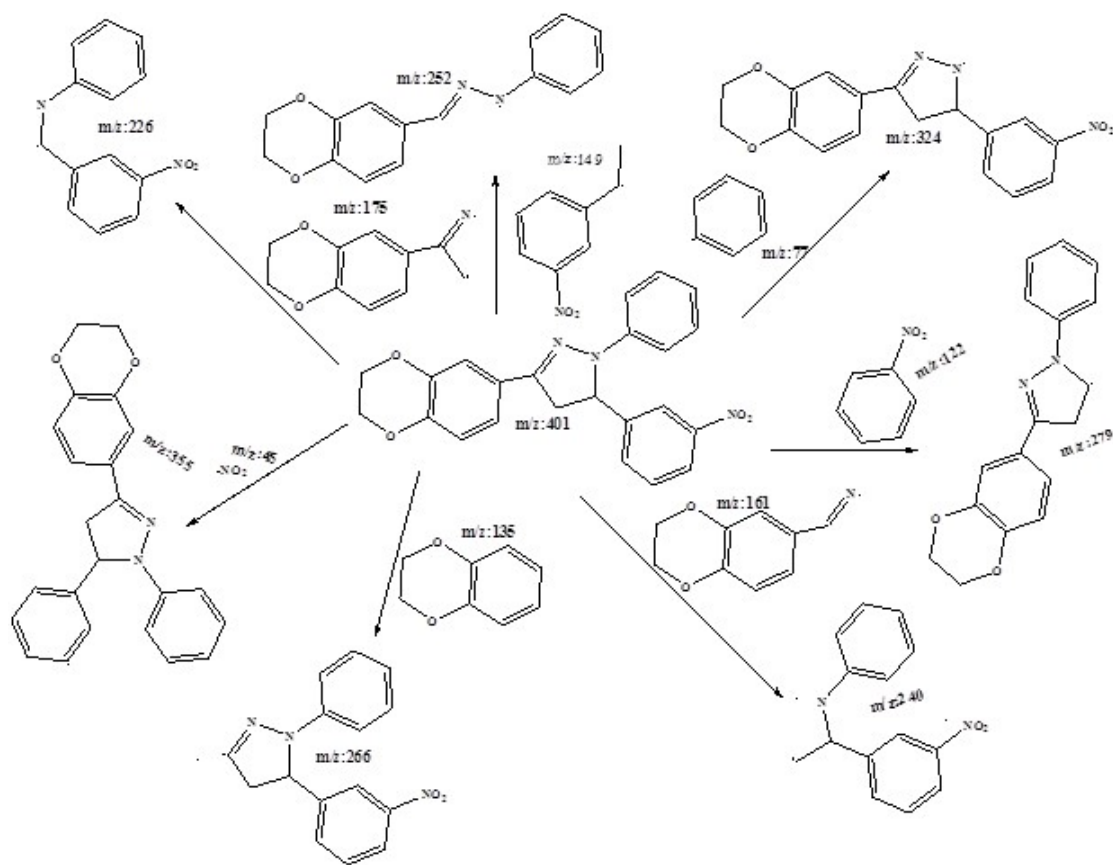


Figure 21- Mass fragment pattern of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(3-nitrophenyl)-1H-pyrazole (**8**)

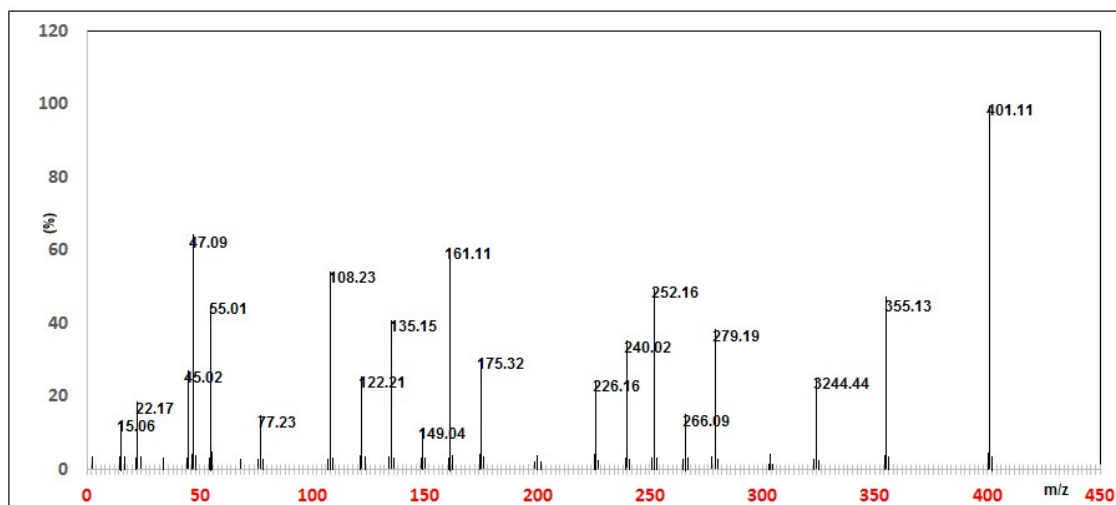


Figure 23- Mass spectra of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-nitrophenyl)-1H-pyrazole (9)

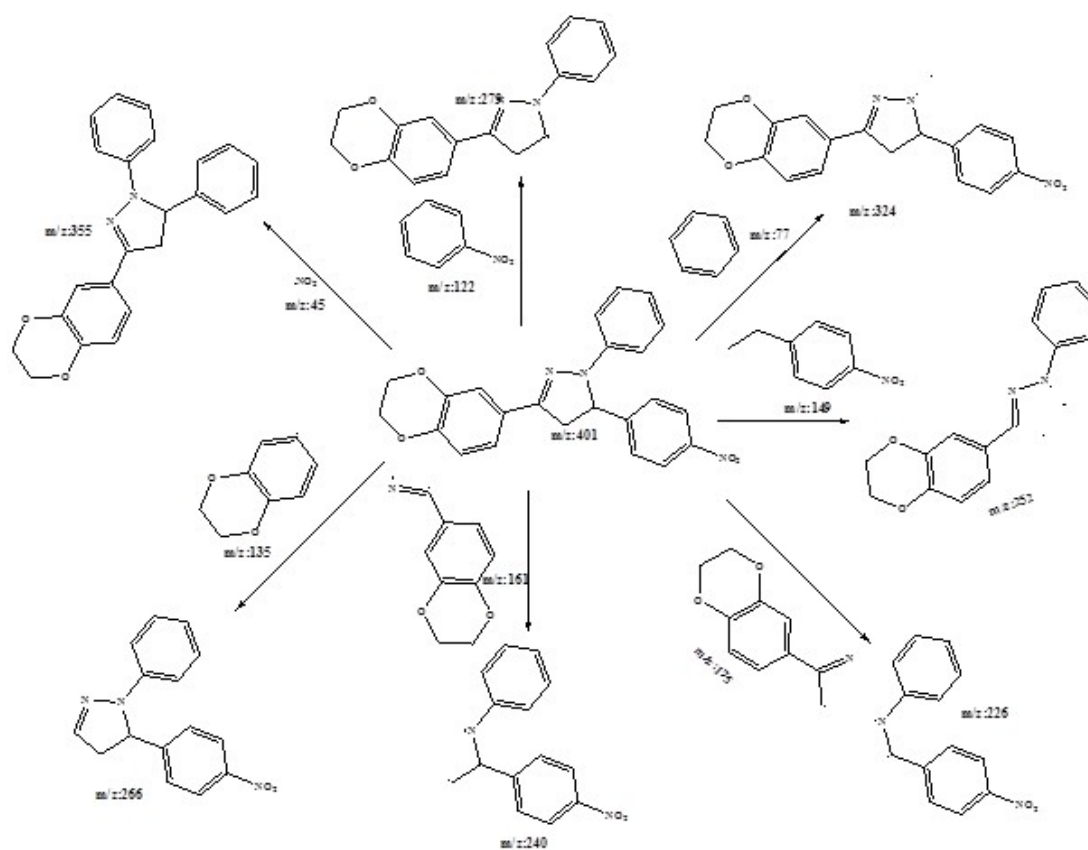


Figure 24- Mass fragment pattern of 4,5-dihydro-3-(2,3-dihydrobenzo[b][1,4]dioxin-7-yl)-(4-nitrophenyl)-1H-pyrazole (9)