

**Linear and Angular Heteroannulated Pyridines Tethered
6-Hydroxy-4,7-Dimethoxybenzofuran: Synthesis and
Antimicrobial Activity**

Najla A. Alshaye ¹, Al-Shimaa Badran ² and Magdy A. Ibrahim ^{2,*}

1) Department of Chemistry, College of Science, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh 11671, Saudi Arabia; naalshaye@pnu.edu.sa

2) Department of Chemistry, Faculty of Education, Ain Shams University, Roxy, Cairo 11711, Egypt; elshimaabadran@edu.asu.edu.eg

**E-mail: magdy_ahmed1977@yahoo.com, Tel.: +2-01007887204*

(A) Copies of ^1H -NMR, ^{13}C -NMR and mass spectral data for the synthesized compounds:

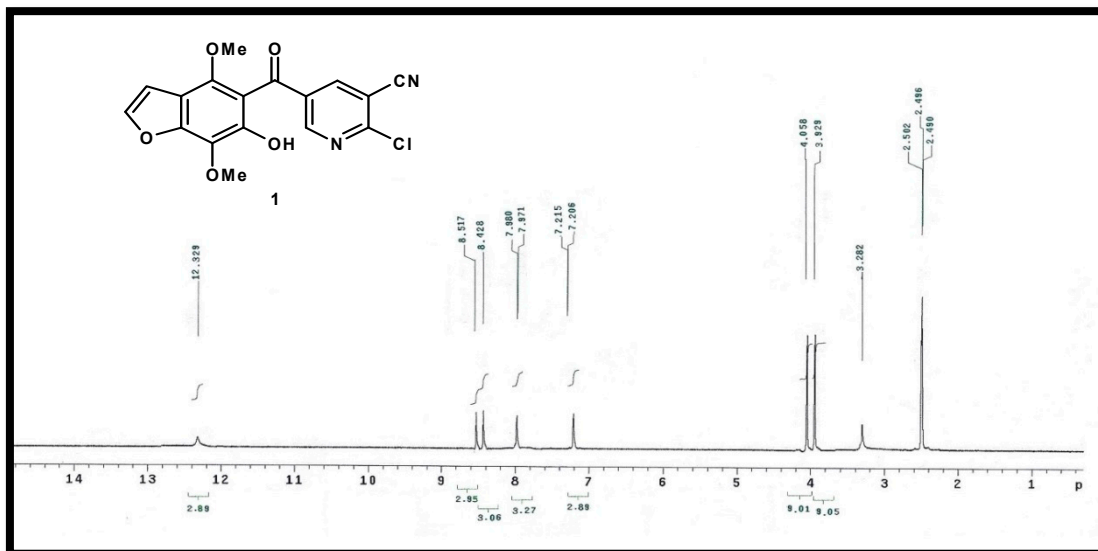


Figure S1 (DMSO- d_6 , 400 MHz): ^1H NMR spectrum of compound 1

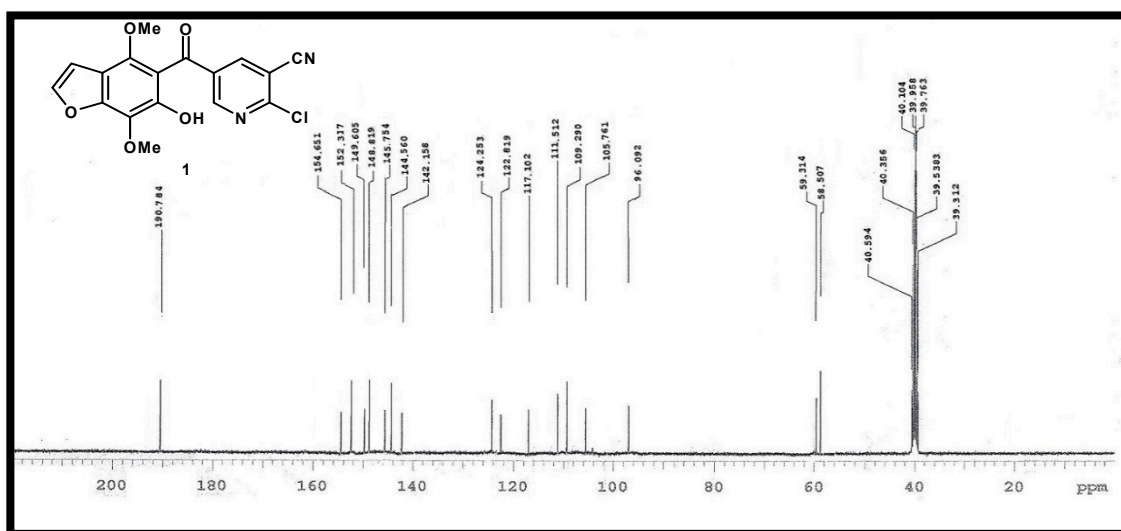


Figure S2 (DMSO- d_6 , 100 MHz): ^{13}C NMR spectrum of compound 1

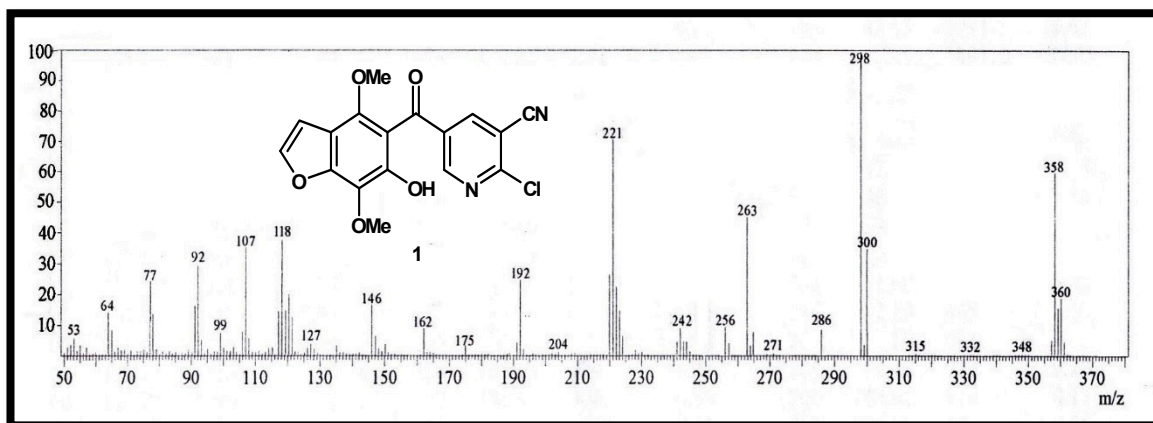


Figure S3: Mass spectrum of compound 1

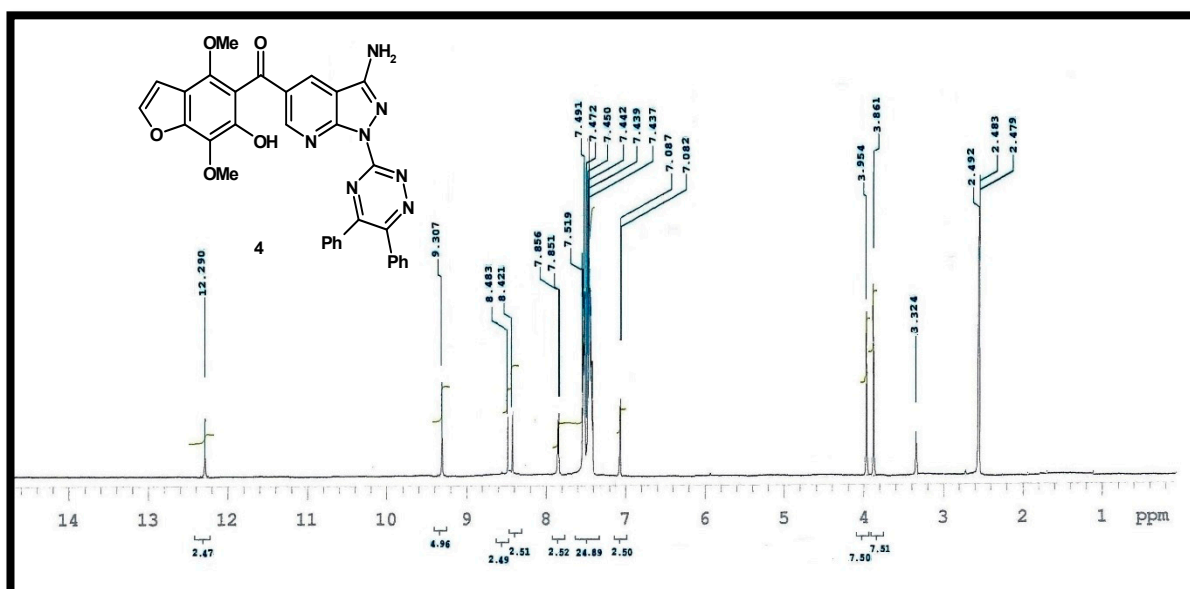


Figure S4 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 4

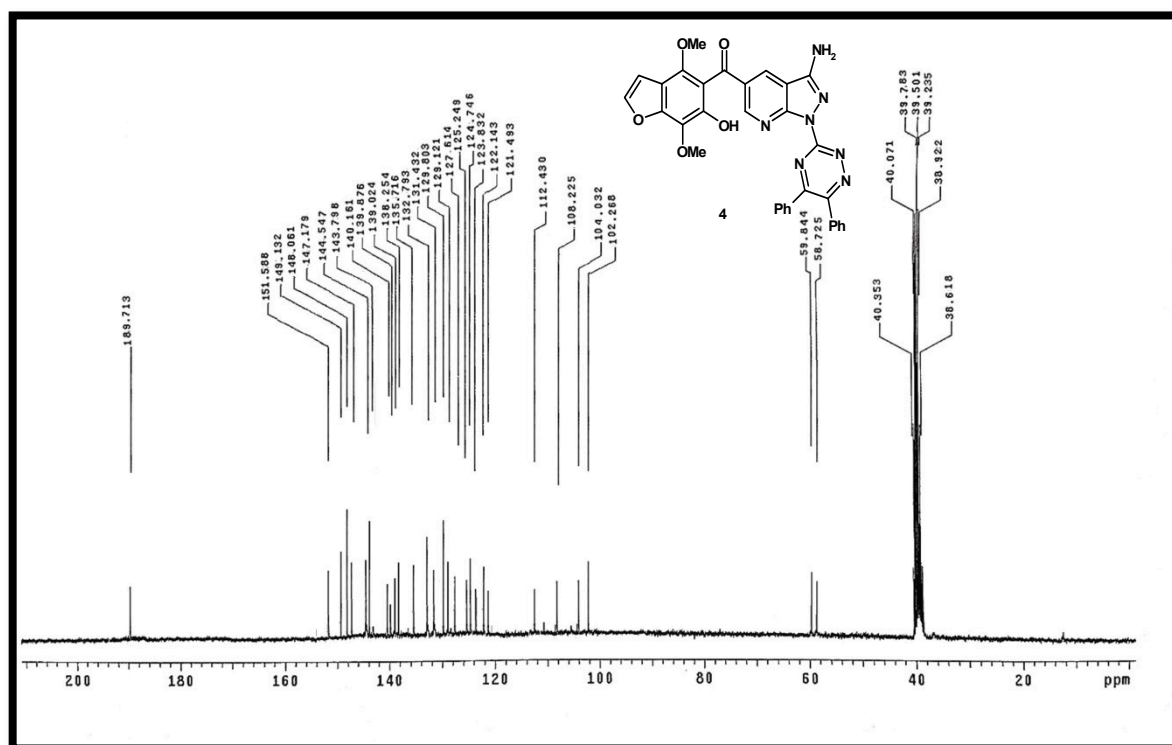


Figure S5 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 4

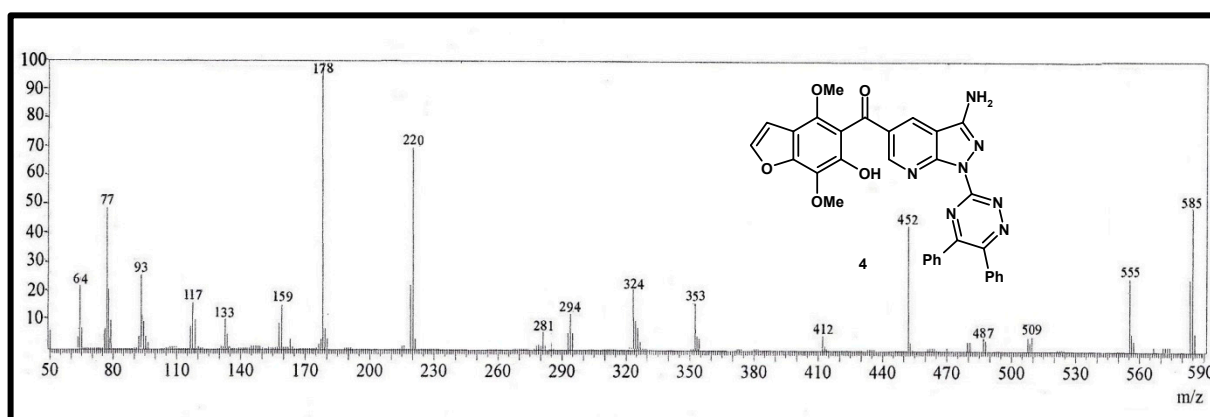


Figure S6: Mass spectrum of compound 4

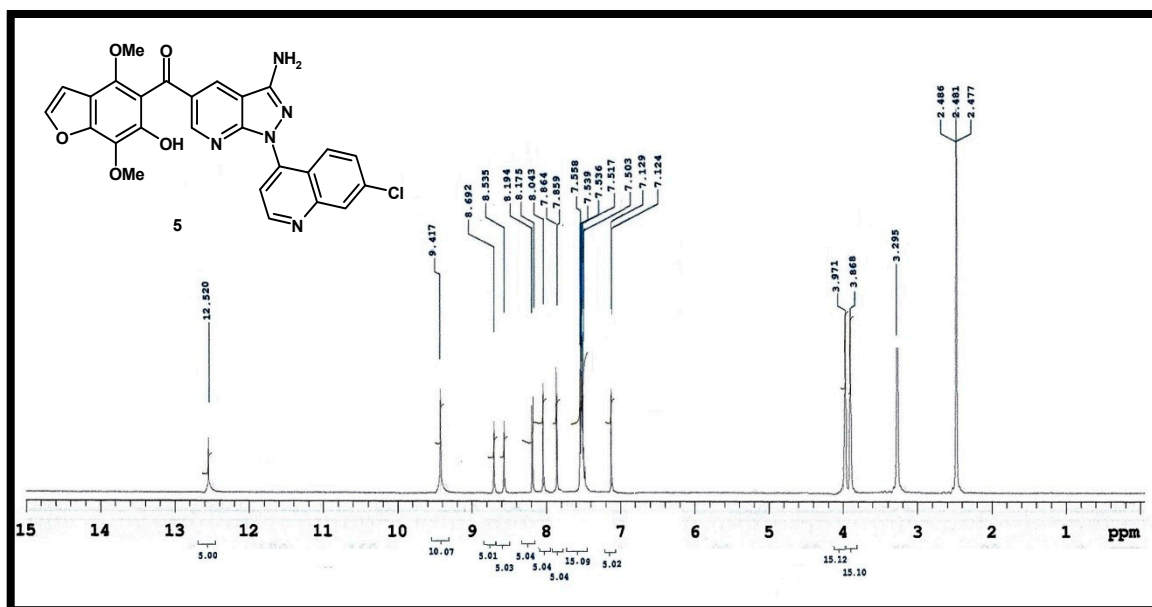


Figure S7 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 5

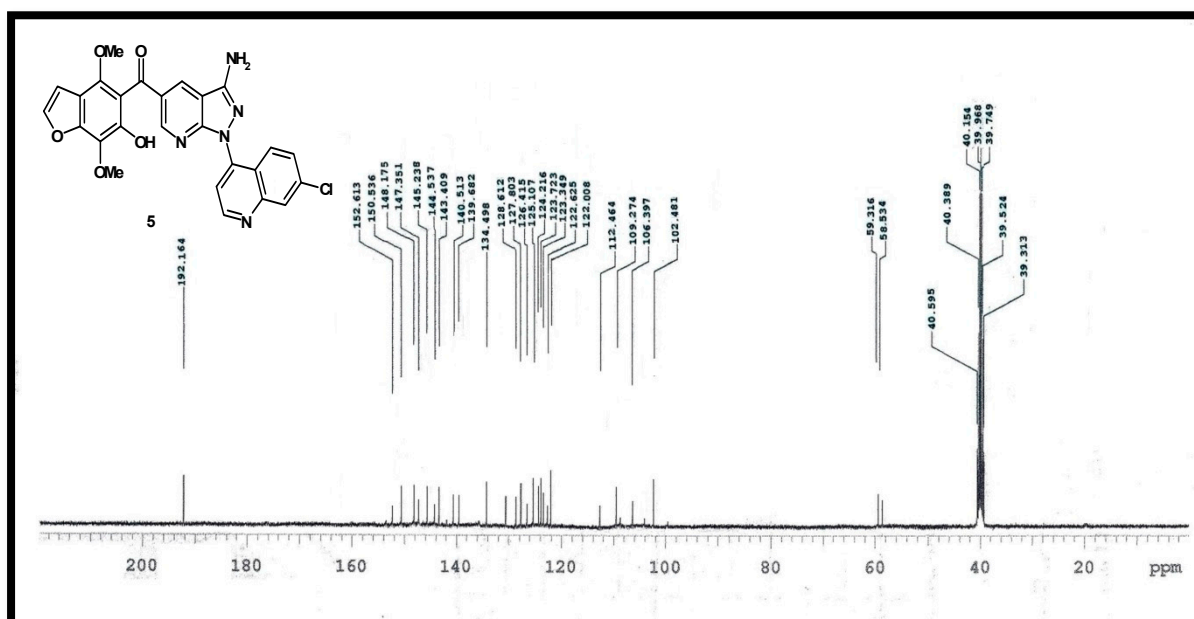


Figure S8 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 5

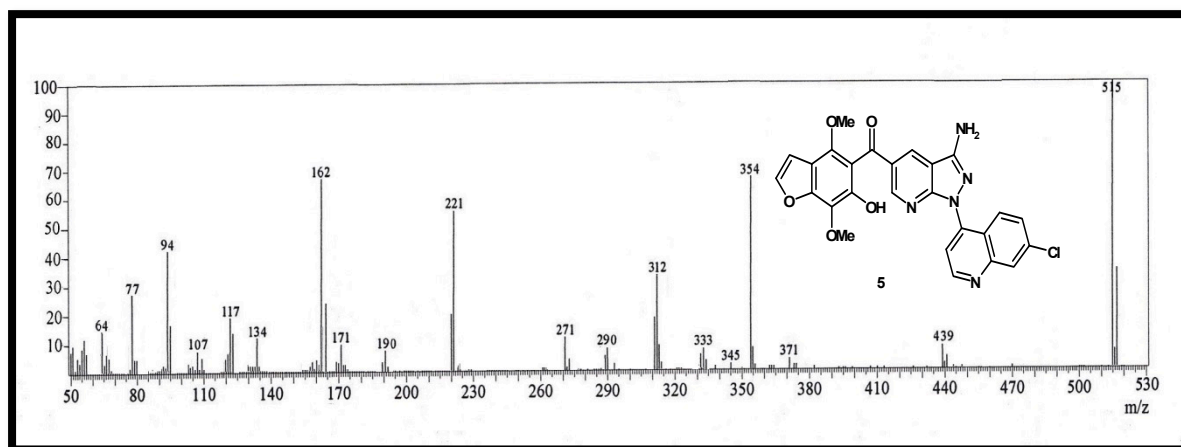


Figure S9: Mass spectrum of compound 5

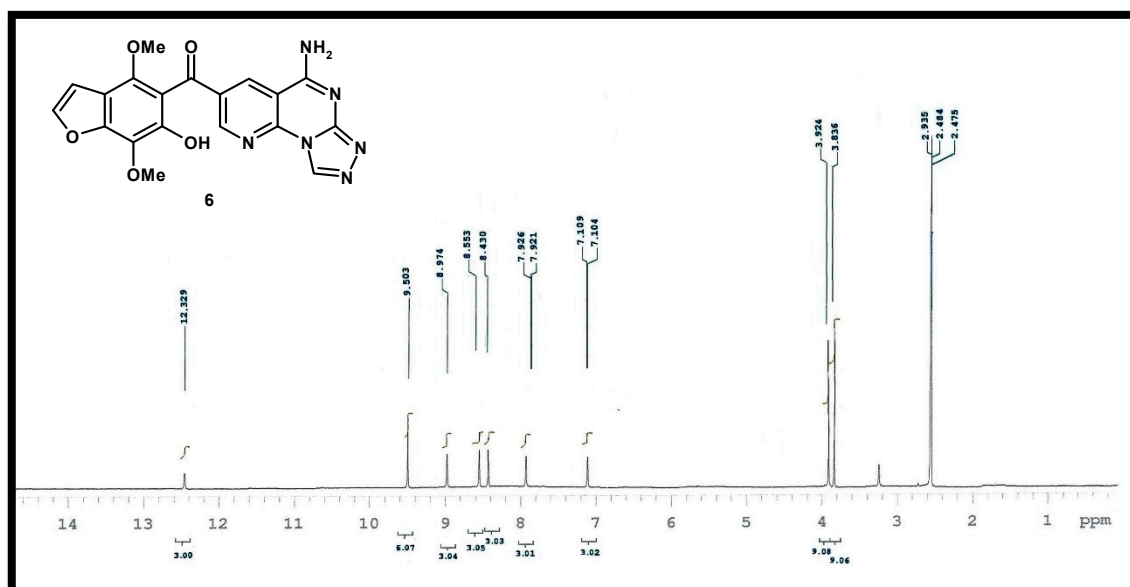


Figure S10 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 6

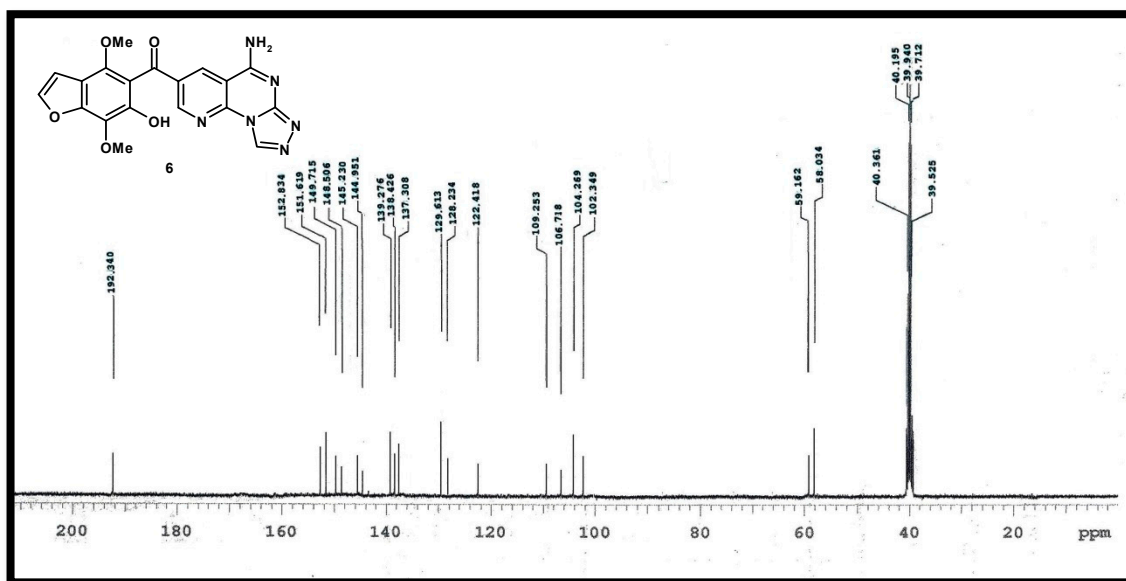


Figure S11 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 6

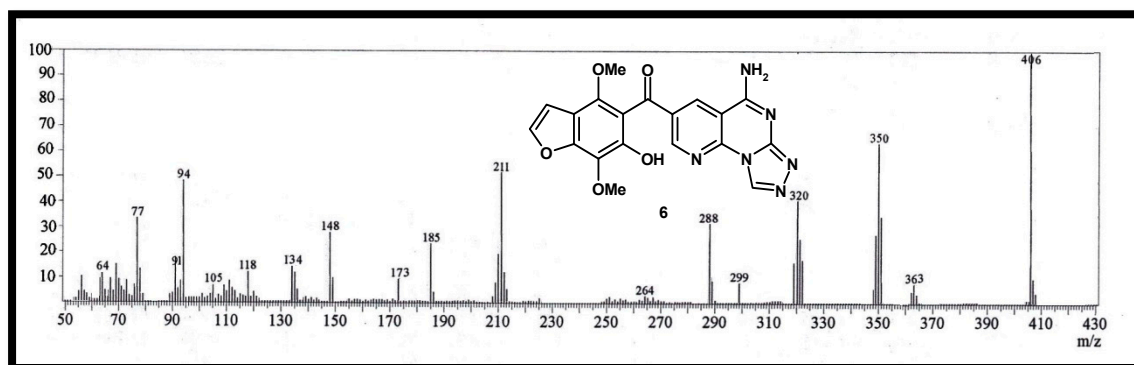


Figure S12: Mass spectrum of compound 6

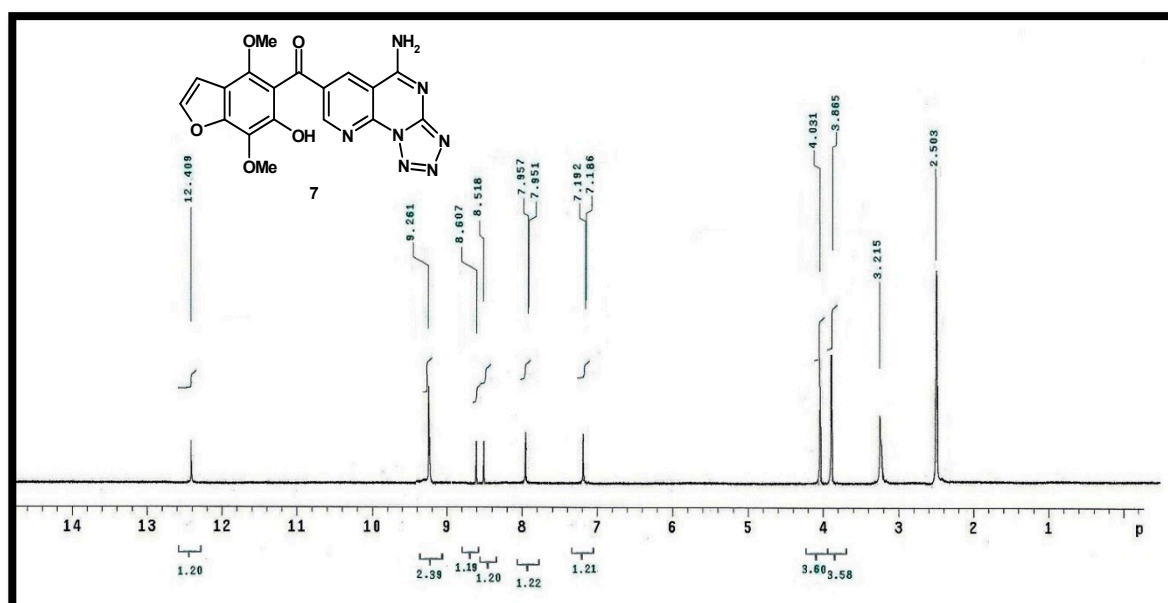


Figure S13 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 7

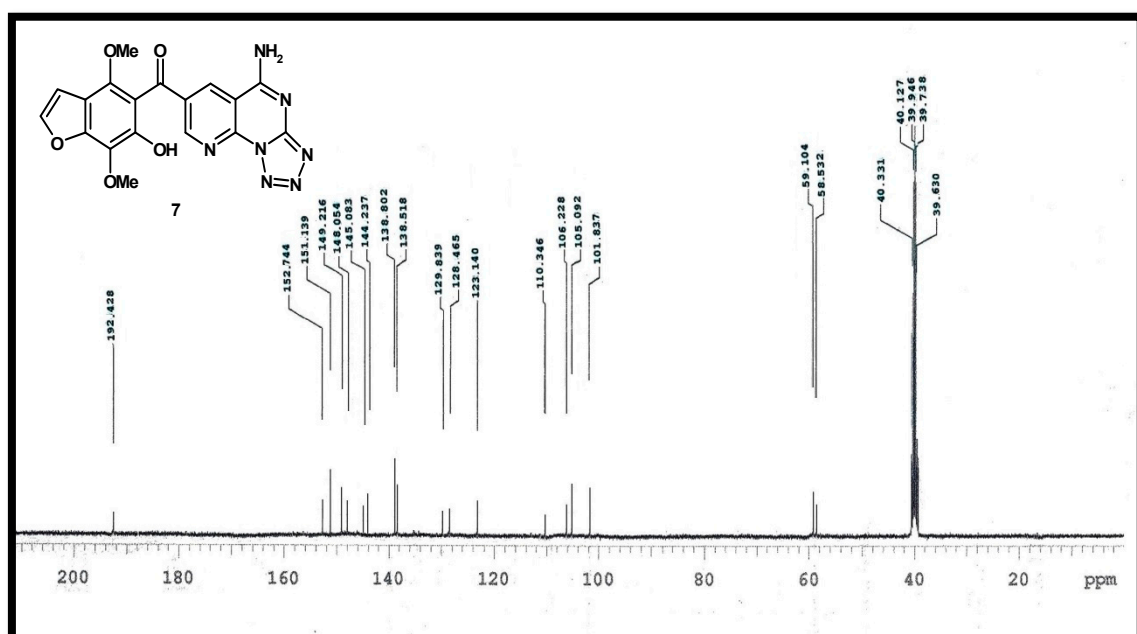


Figure S14 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 7

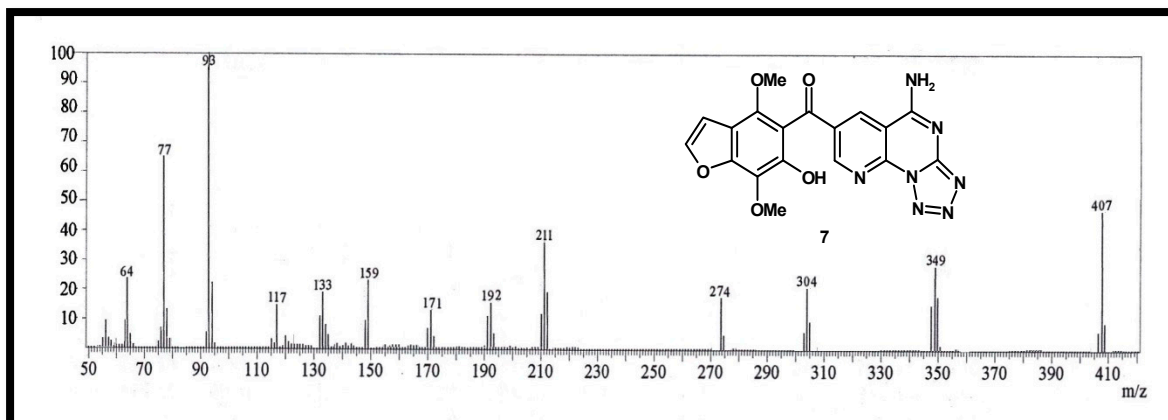


Figure S15: Mass spectrum of compound 7

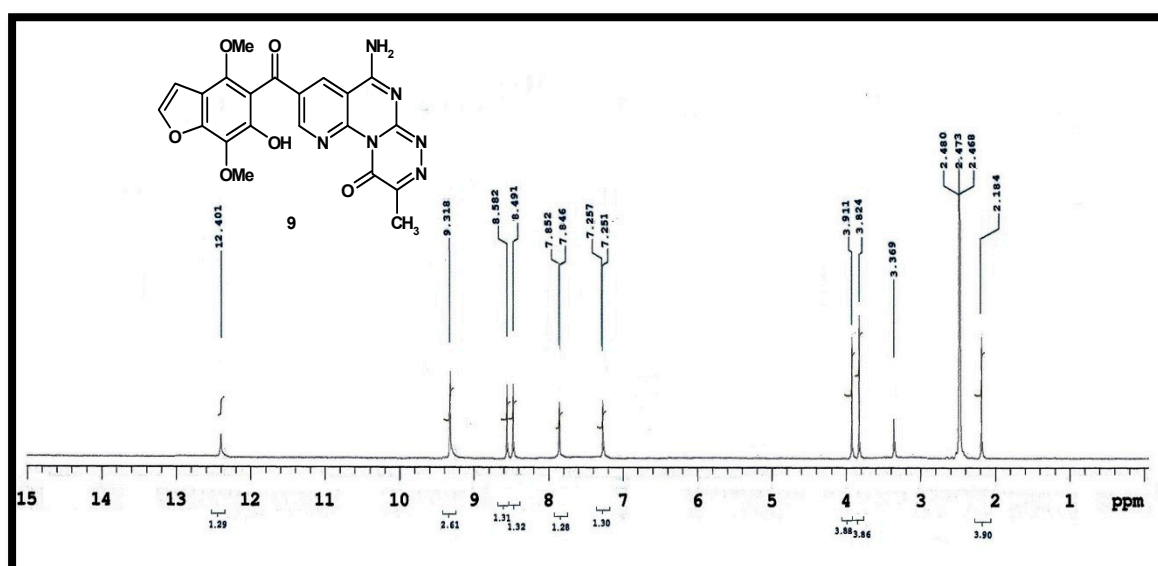


Figure S16 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 9

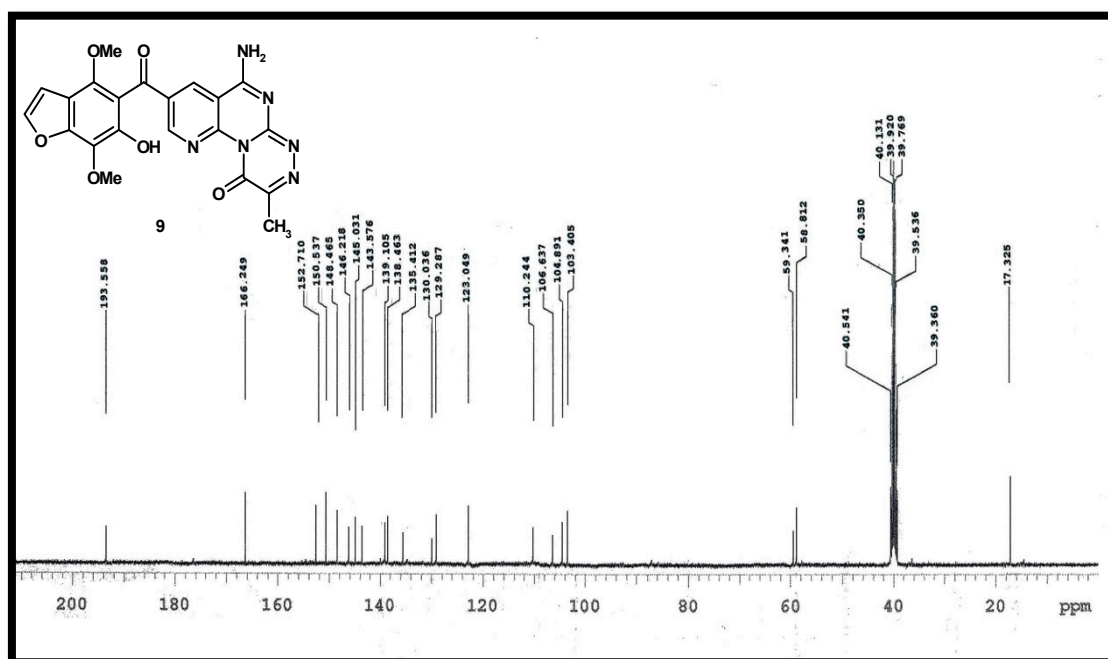


Figure S17 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 9

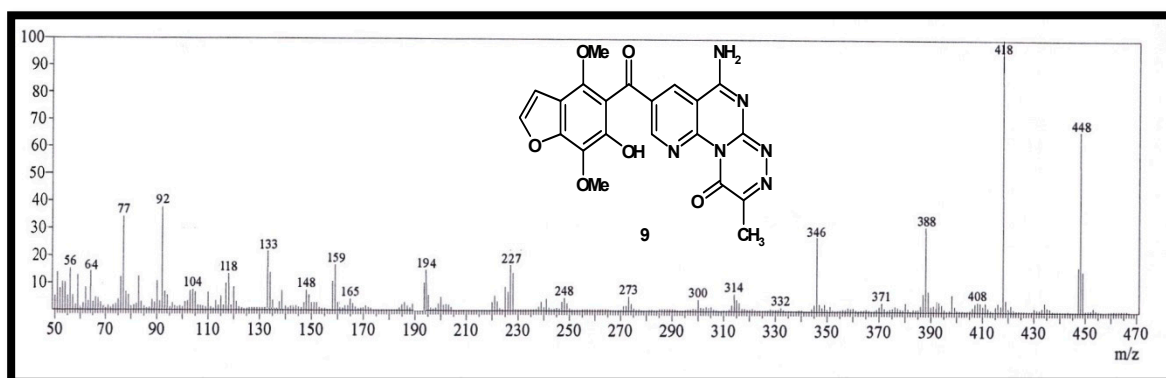


Figure S18: Mass spectrum of compound 9

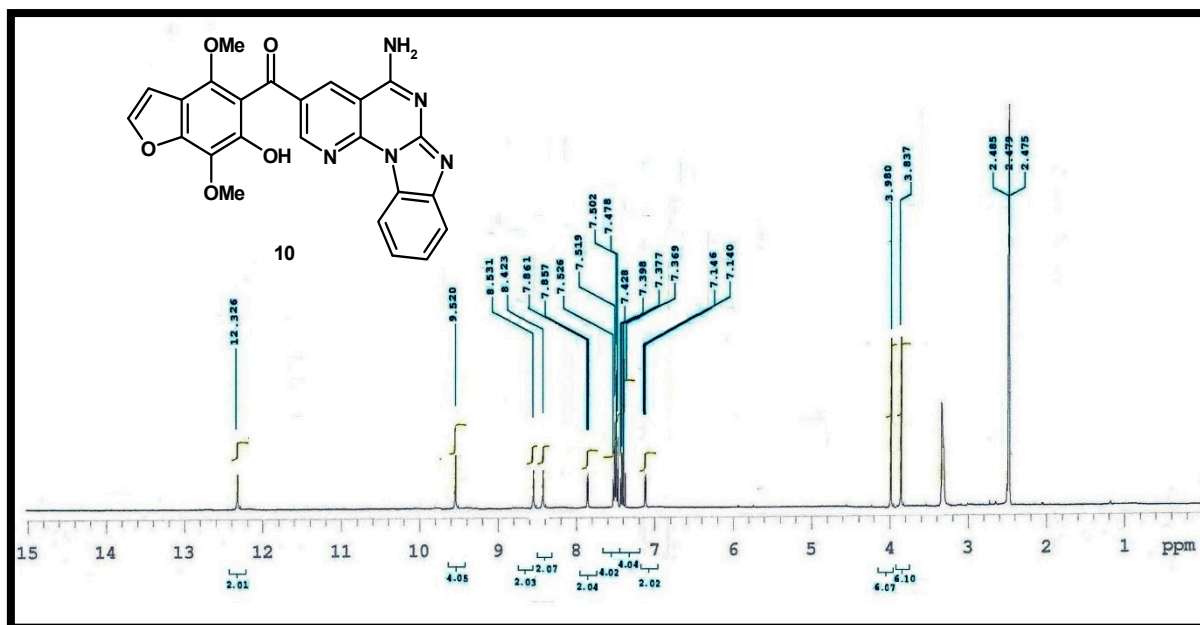


Figure S19 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 10

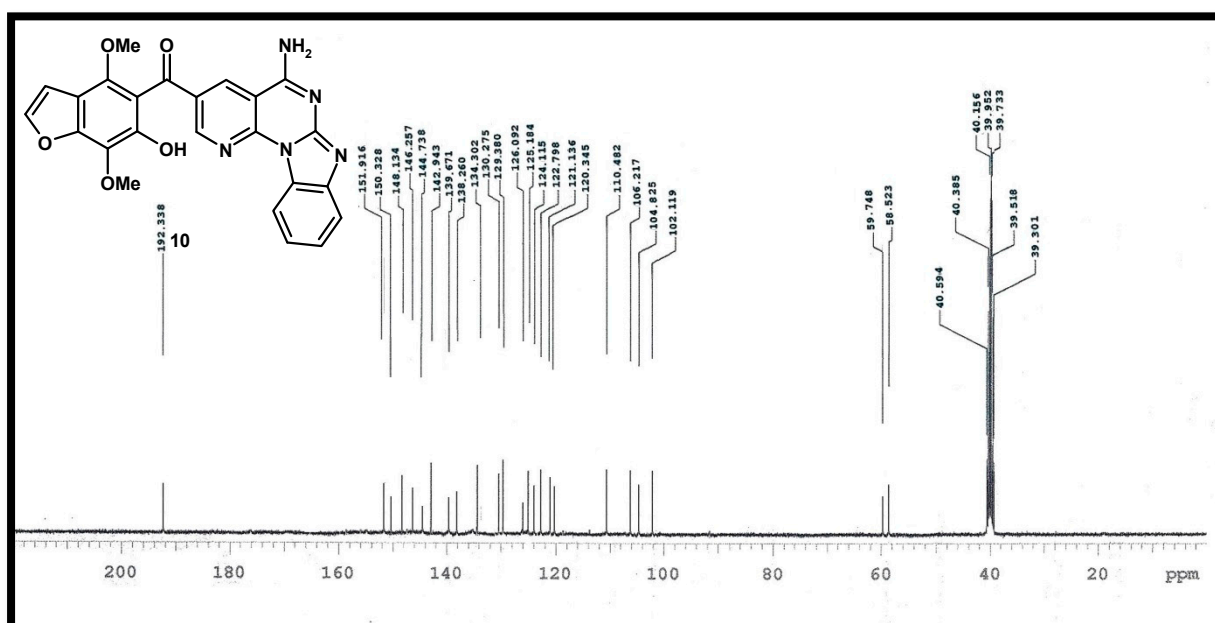


Figure S20 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 10

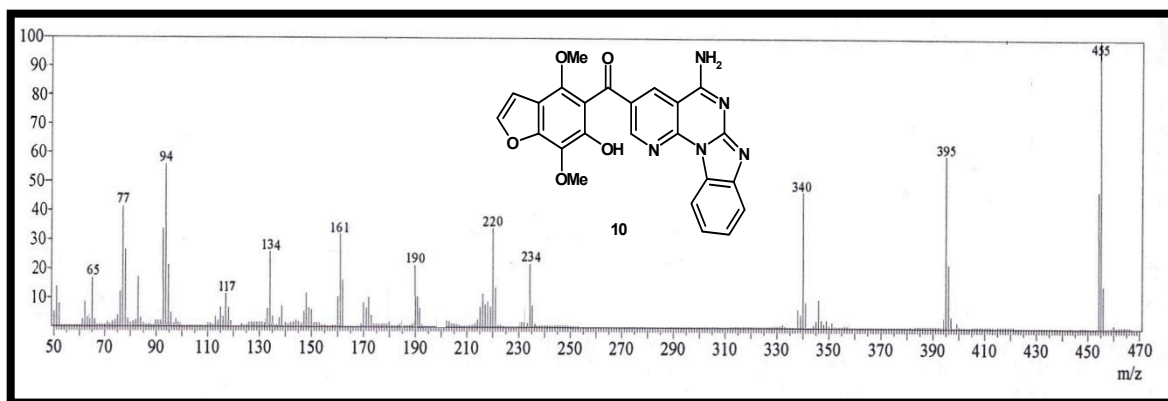


Figure S21: Mass spectrum of compound 10

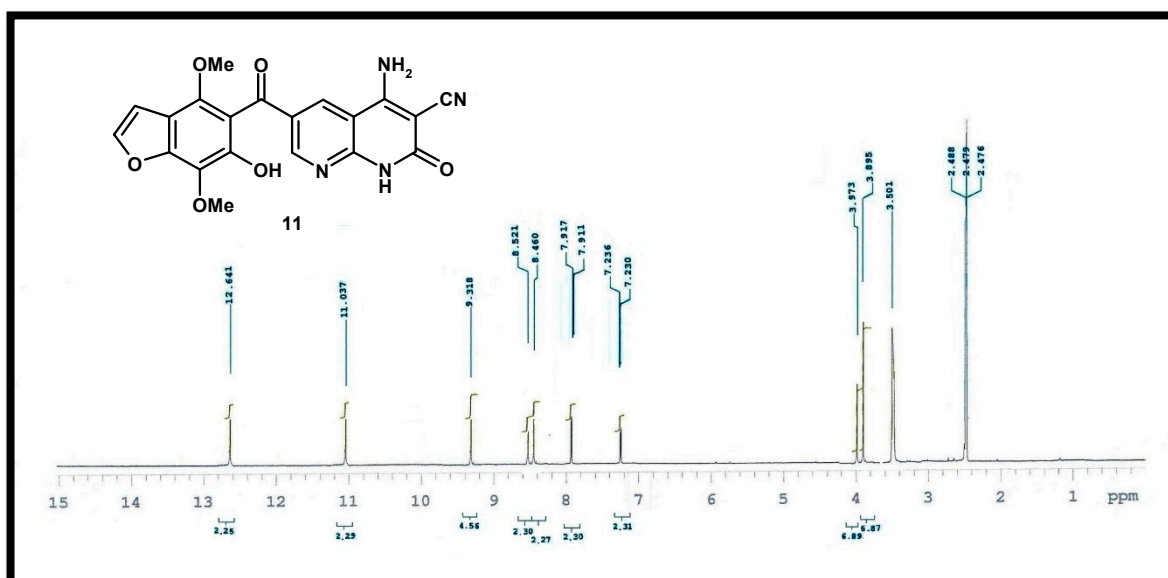


Figure S22 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 11

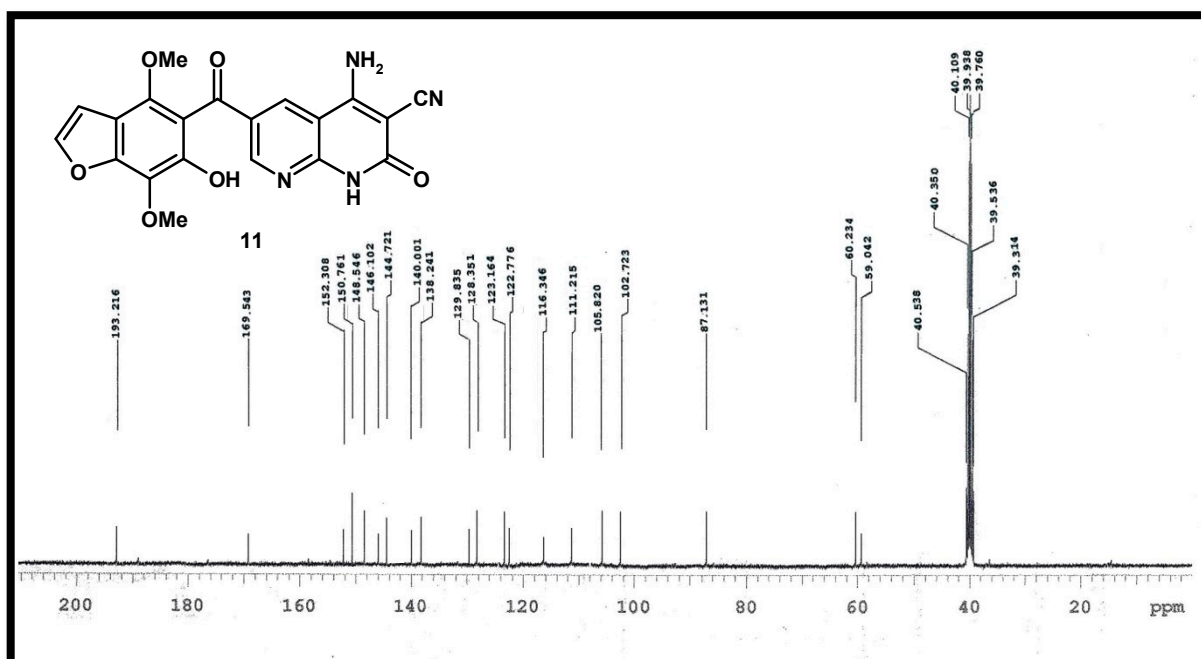


Figure S23 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 11

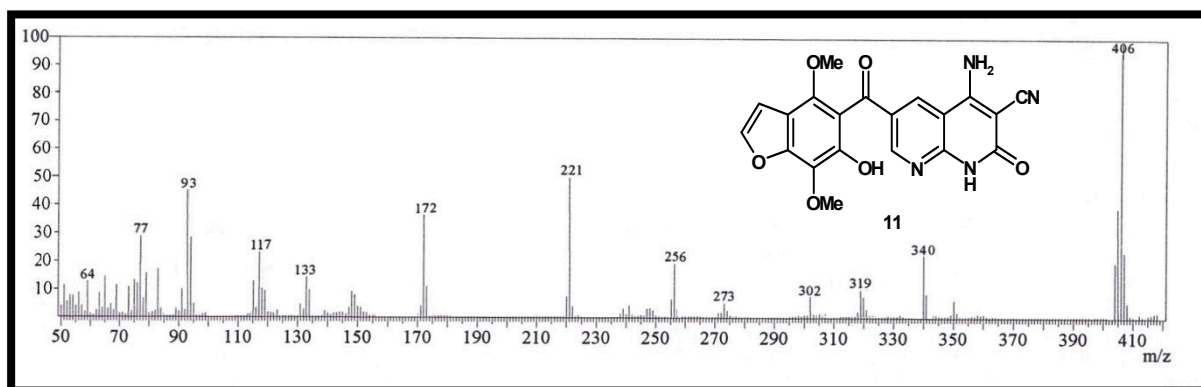


Figure S24: Mass spectrum of compound 11

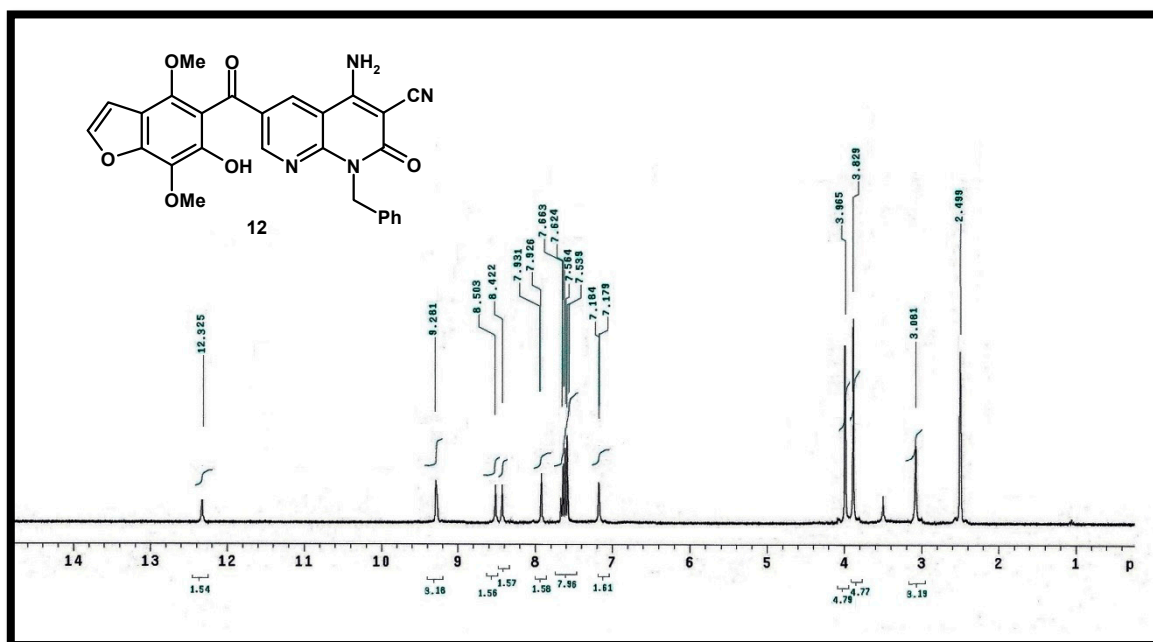


Figure S25 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 12

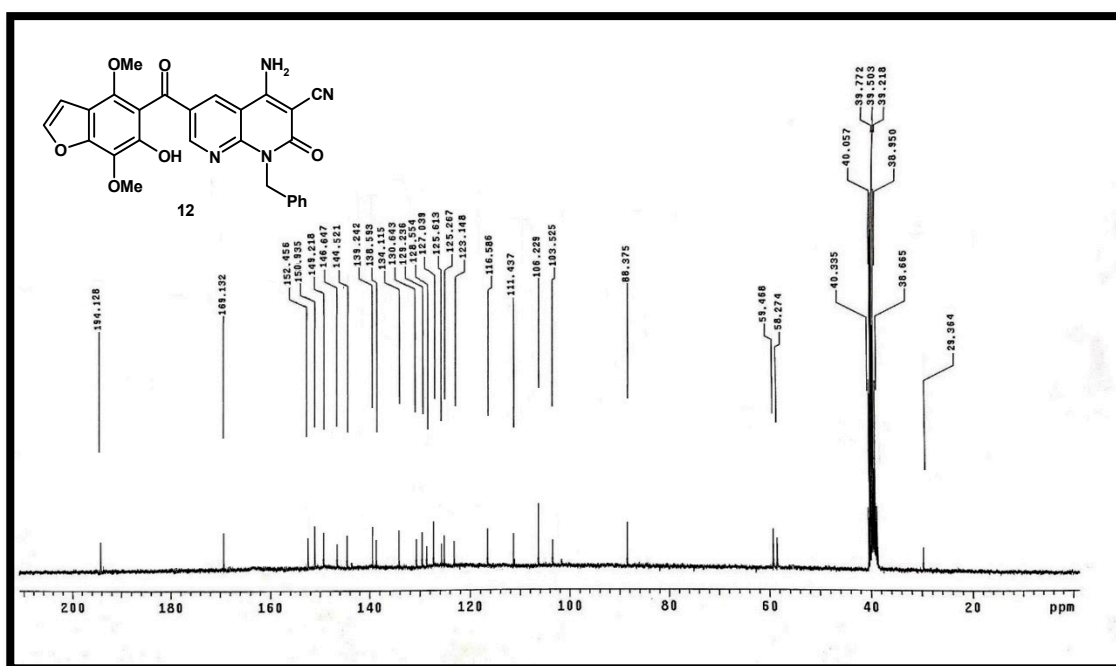


Figure S26 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 12

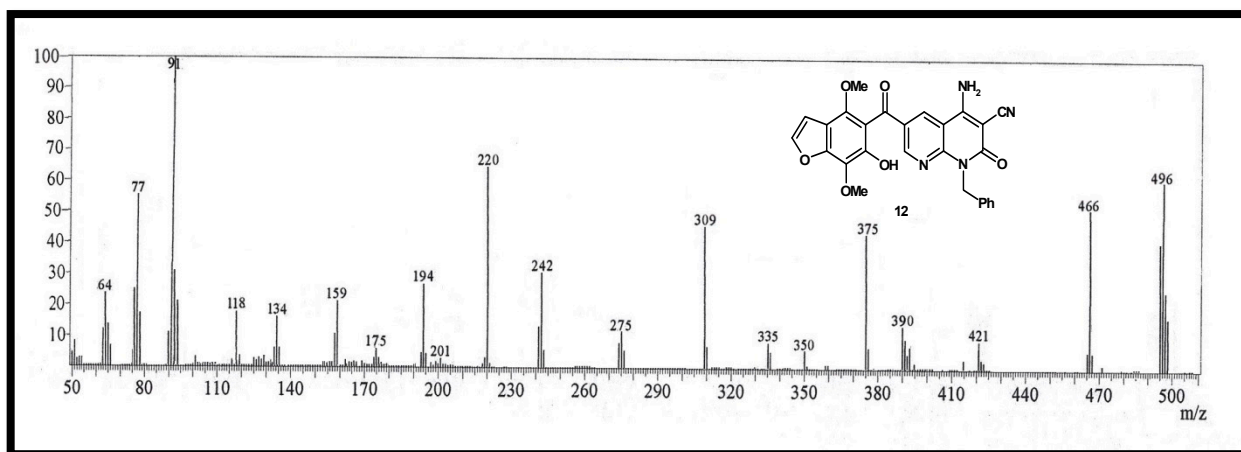


Figure S27: Mass spectrum of compound 12

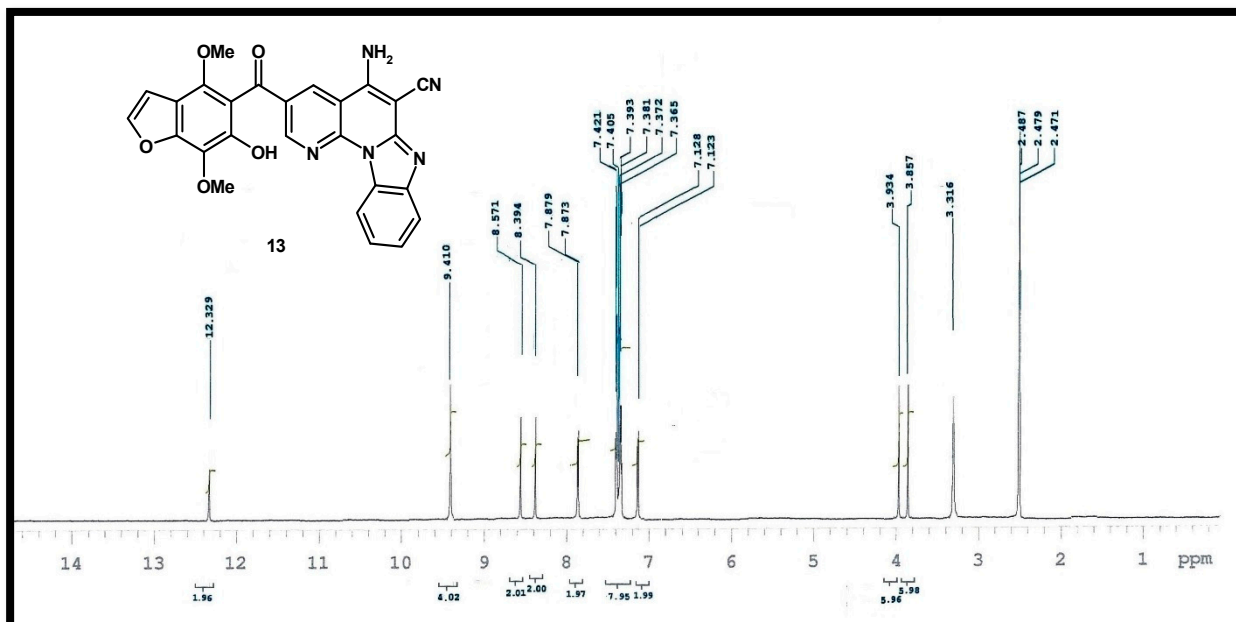


Figure S28 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 13

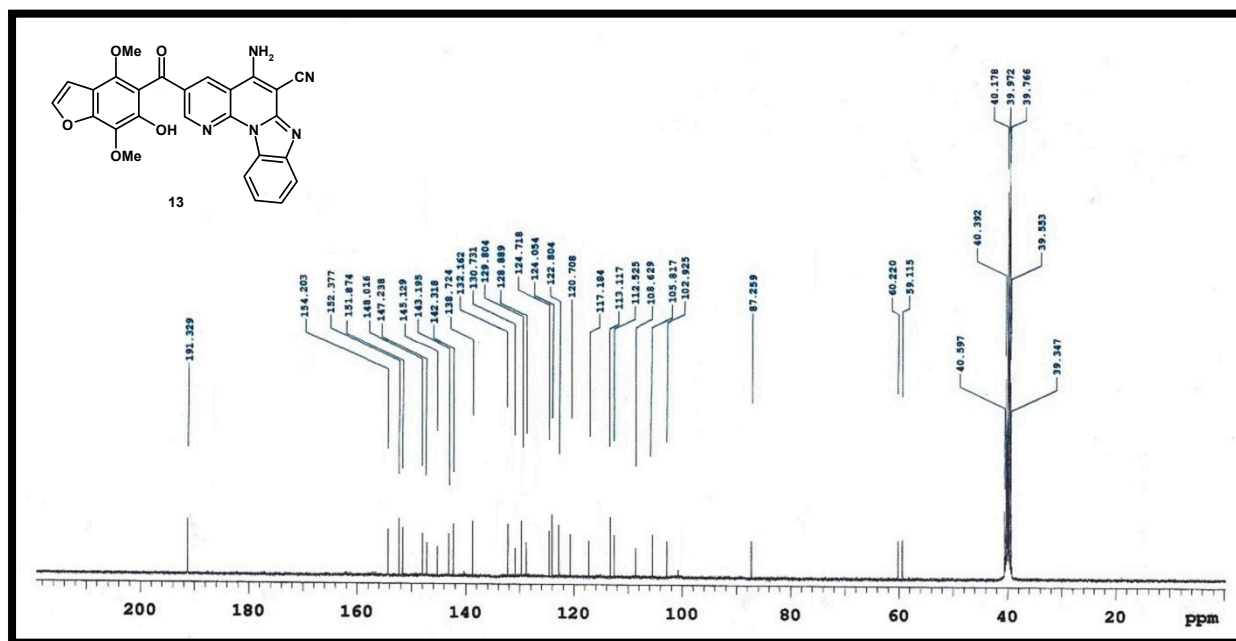


Figure S29 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 13

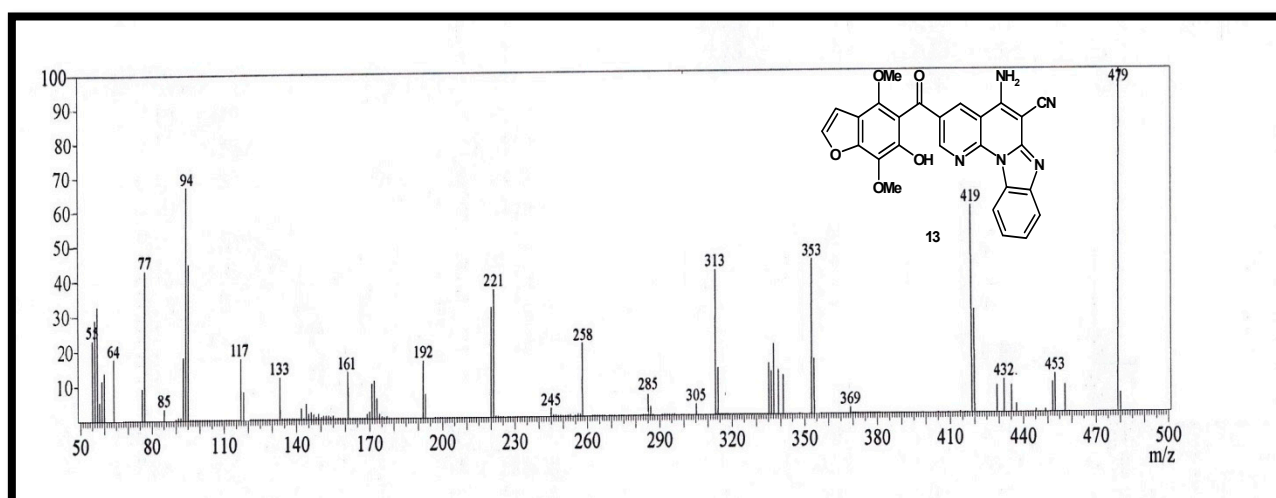


Figure S30: Mass spectrum of compound 13

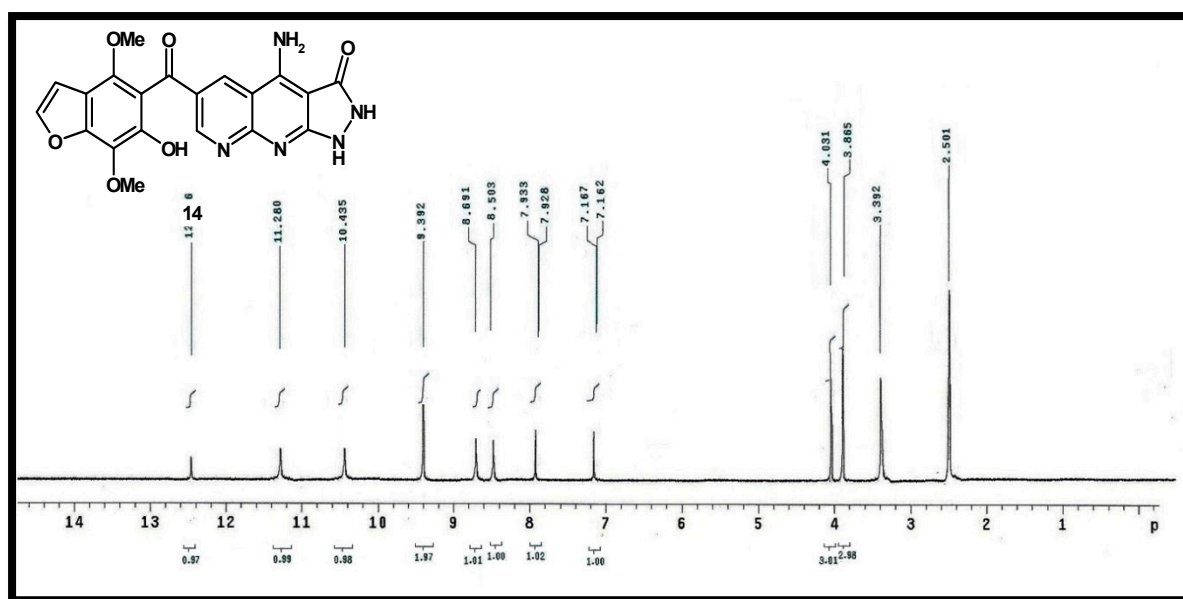


Figure S31 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 14

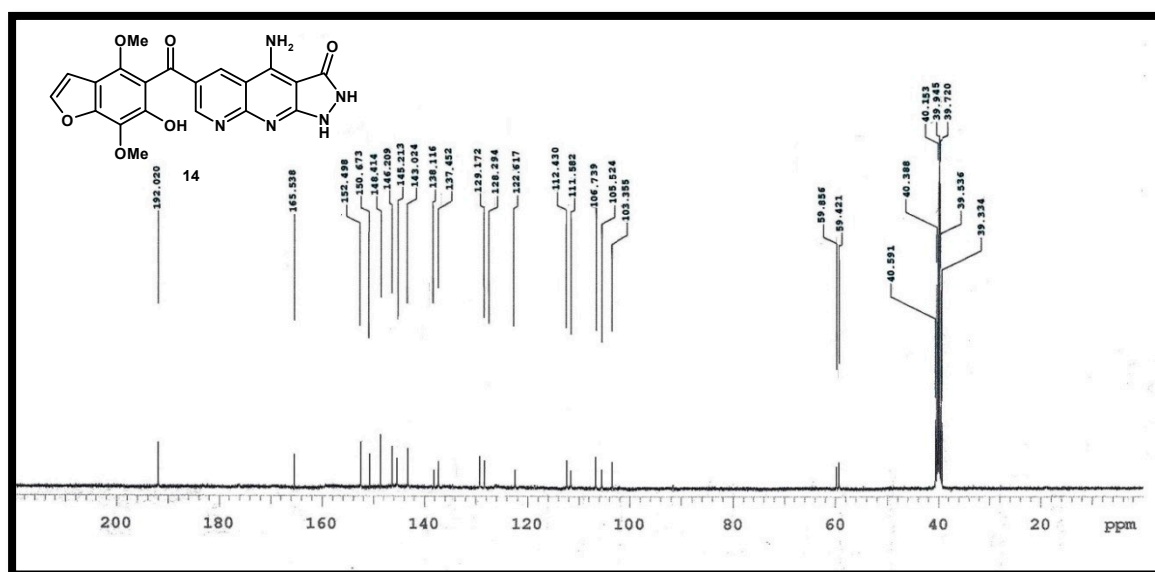


Figure S32 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 14

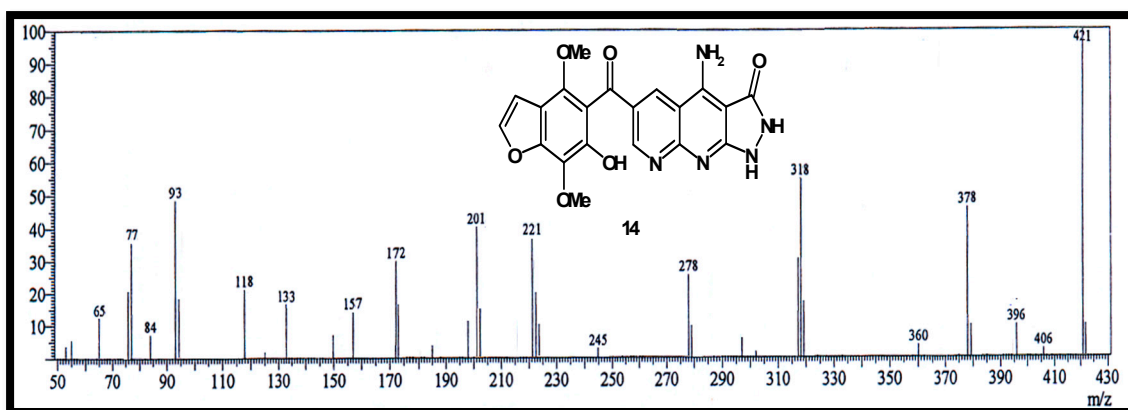


Figure S33: Mass spectrum of compound 14

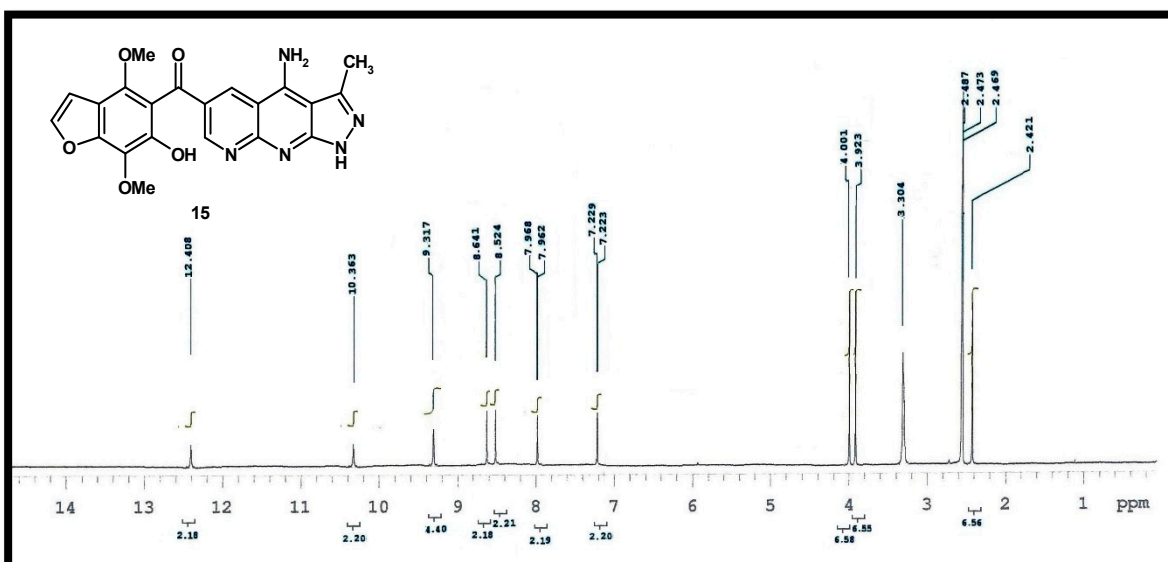


Figure S34 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 15

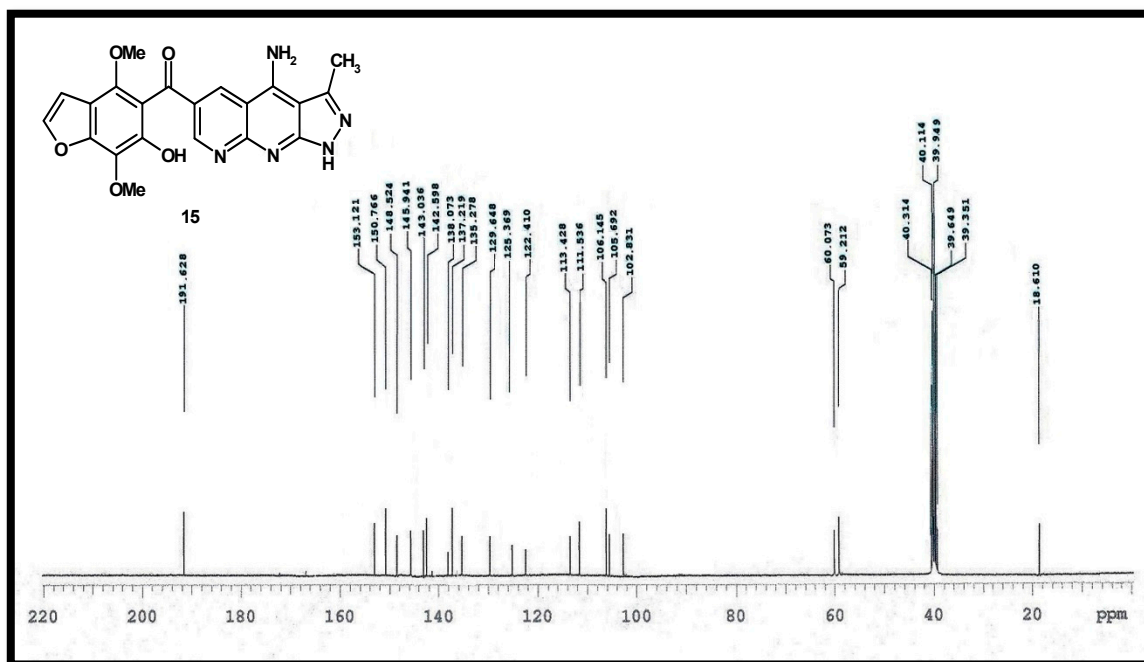


Figure S35 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 15

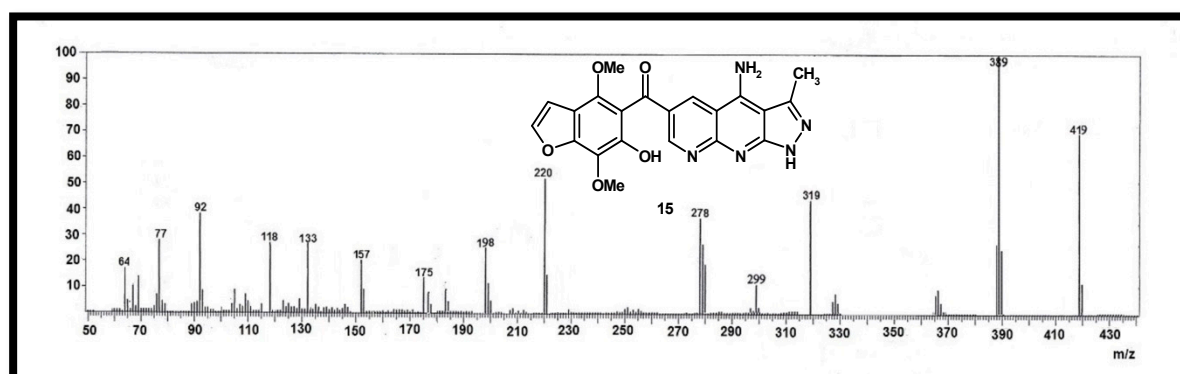


Figure S36: Mass spectrum of compound 15

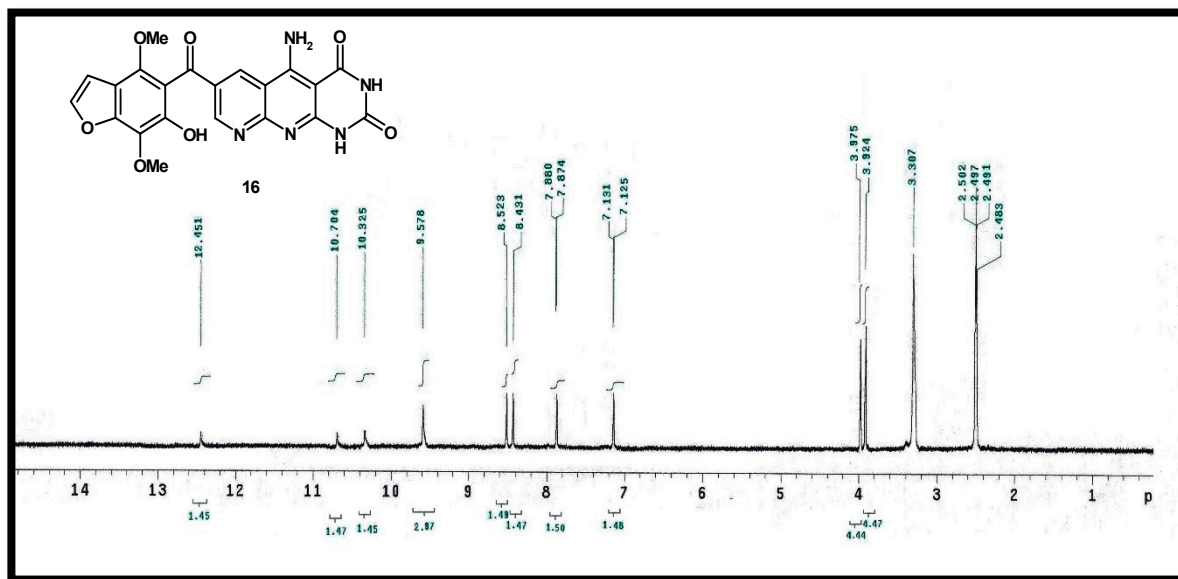


Figure S37 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 16

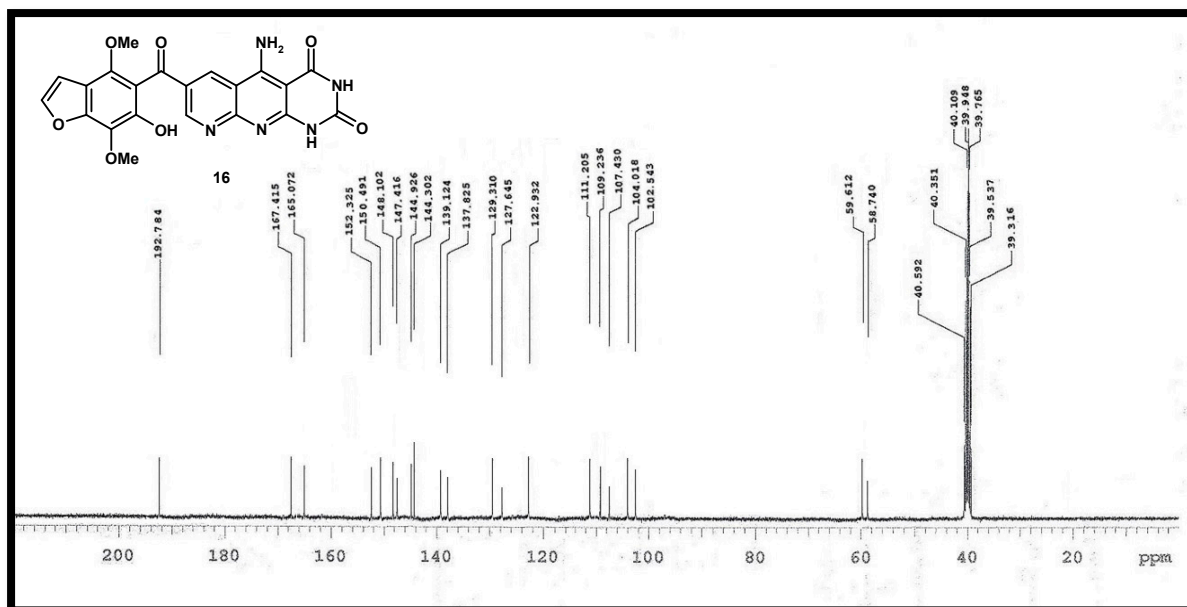


Figure S38 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 16

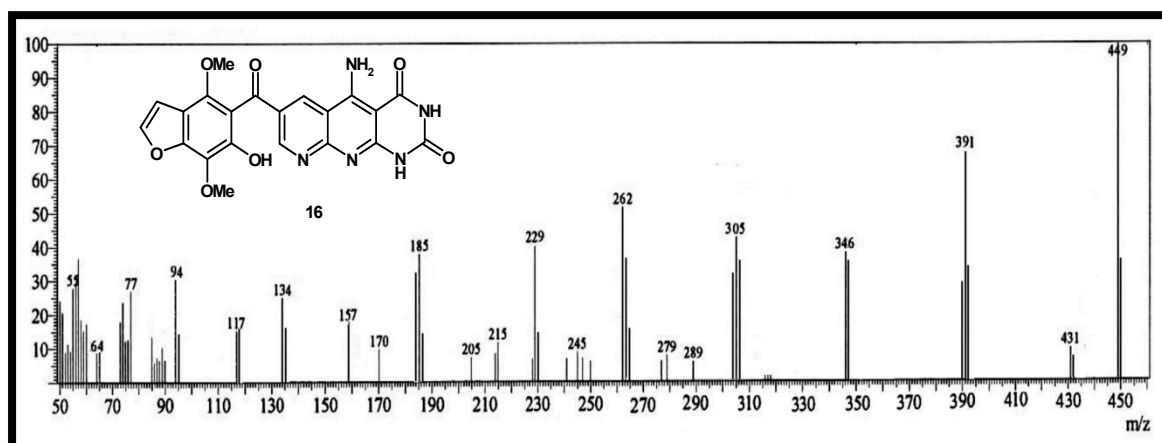


Figure S39: Mass spectrum of compound 16

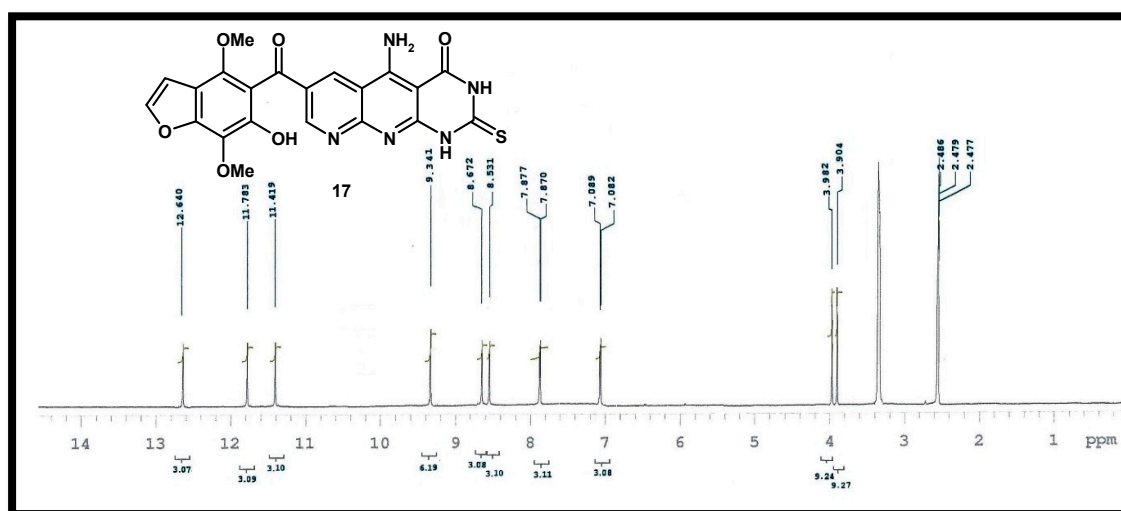


Figure S40 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 17

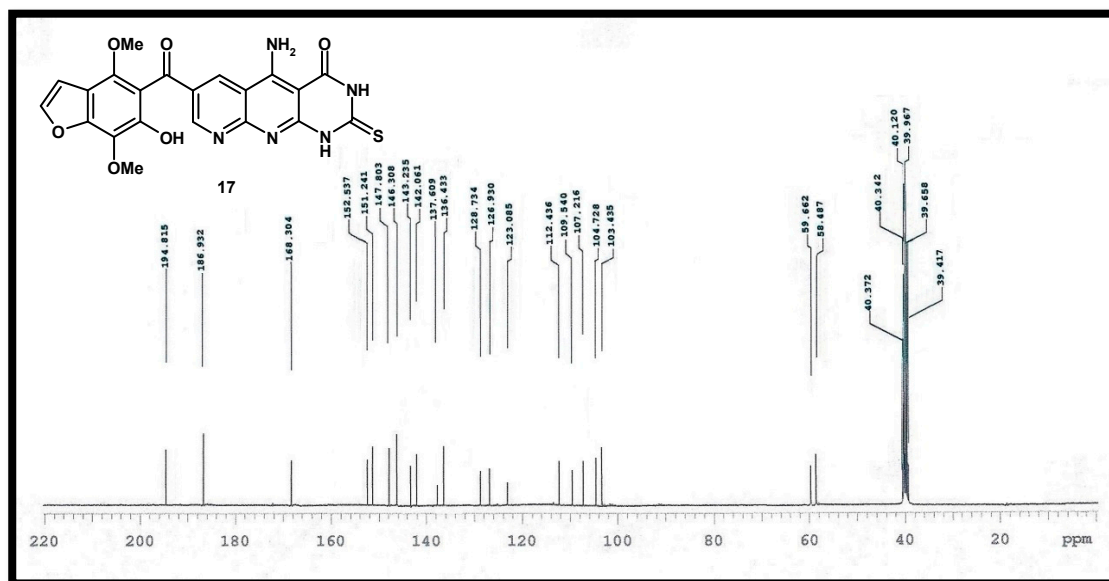


Figure S41 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 17

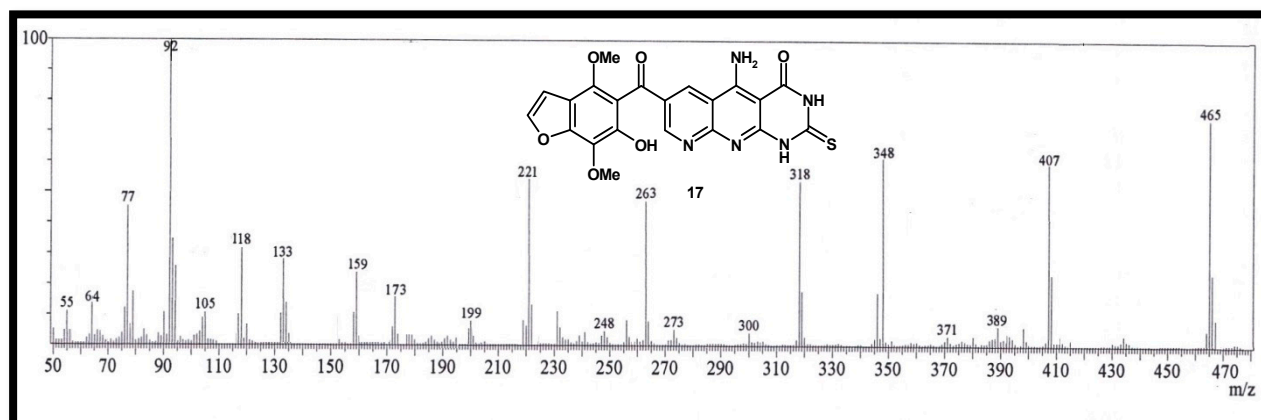


Figure S42: Mass spectrum of compound 17

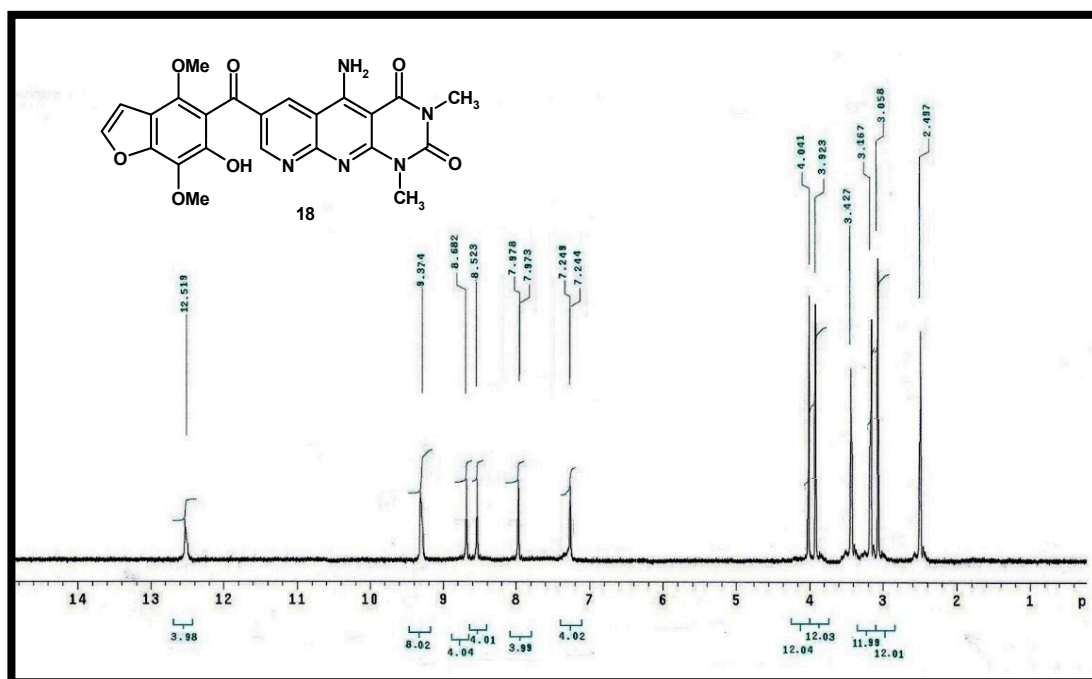


Figure S43 (DMSO-*d*₆, 400 MHz): ¹H NMR spectrum of compound 18

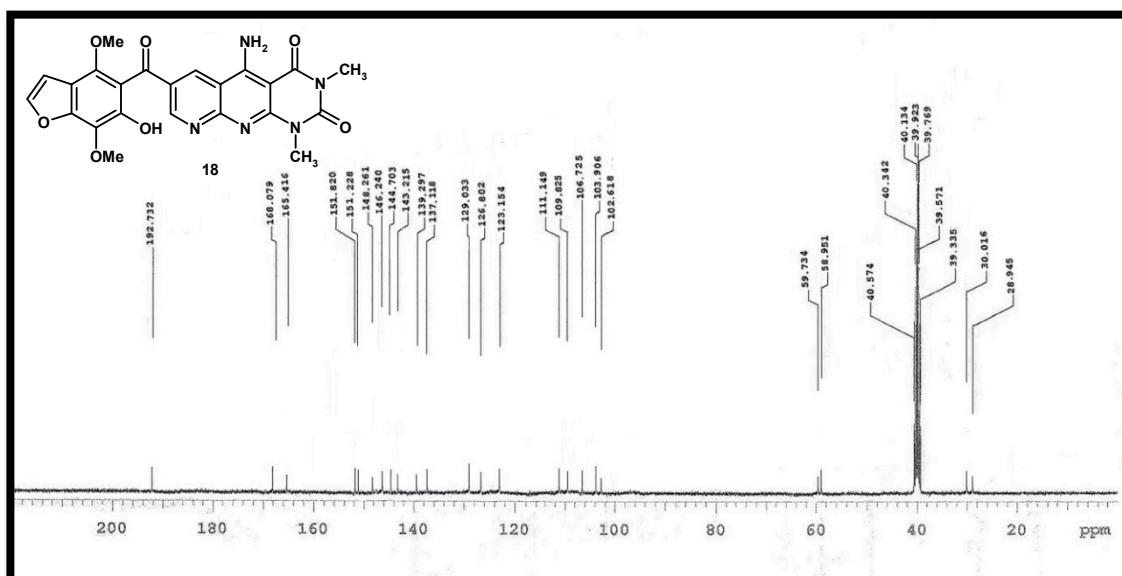


Figure S44 (DMSO-*d*₆, 100 MHz): ¹³C NMR spectrum of compound 18

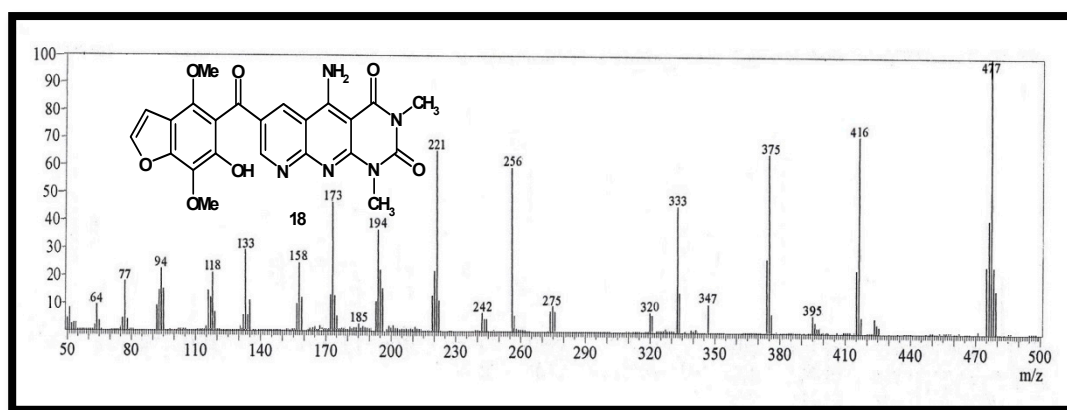


Figure S45: Mass spectrum of compound 18

B) Antimicrobial efficiency of the synthesized compounds with respected to references drugs

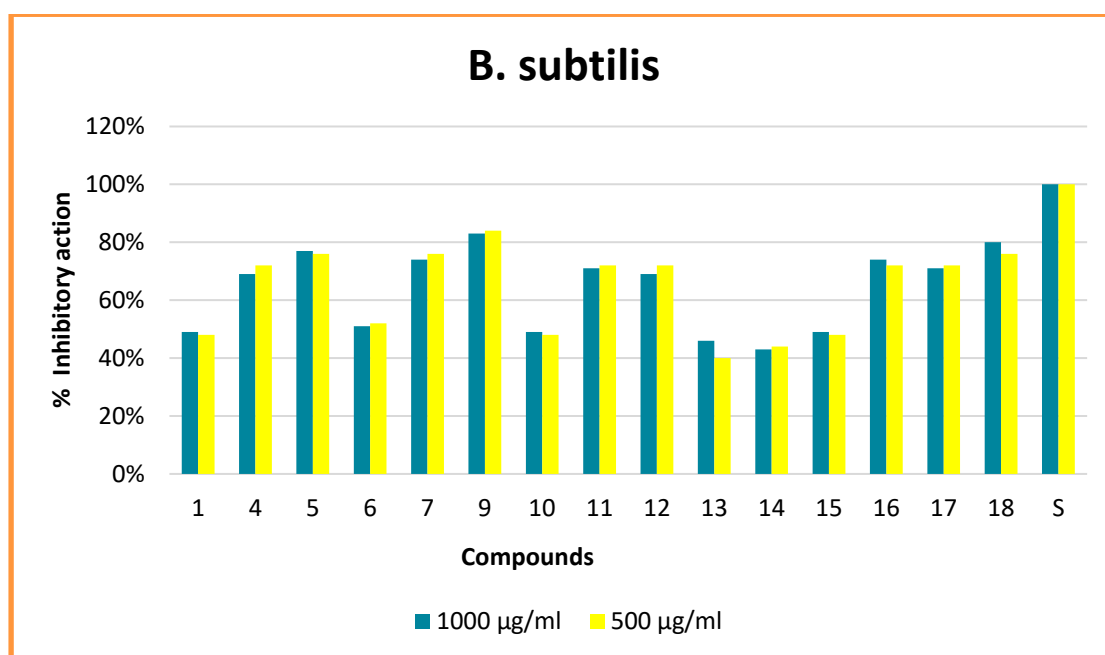


Chart S1: The antibacterial efficiency of synthesized compounds against *B. Subtilis*

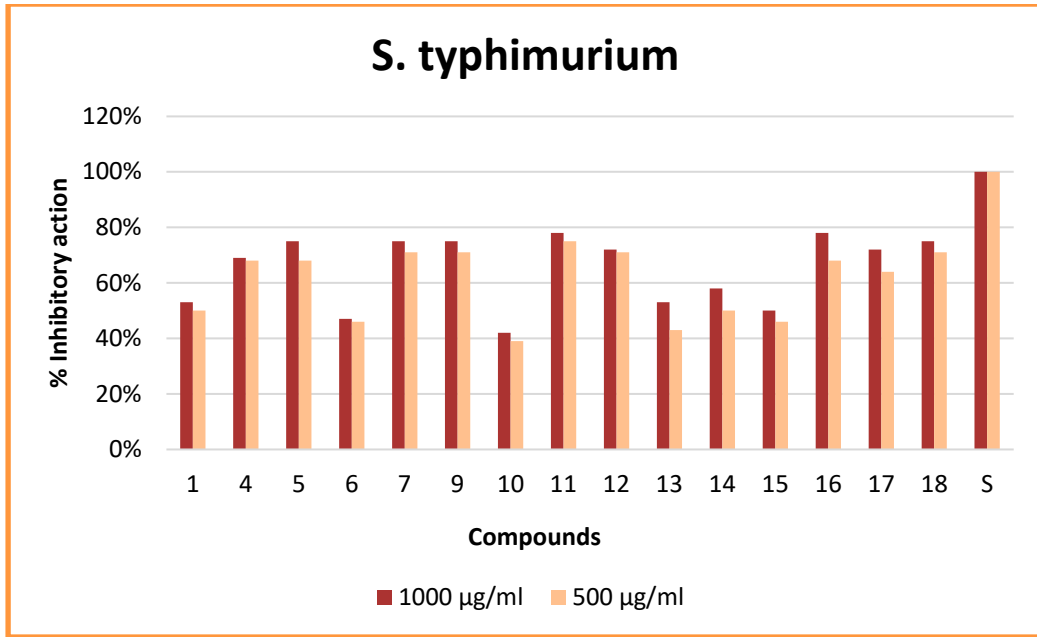


Chart S2: The antibacterial efficiency of synthesized compounds against *S. Typhimurium*

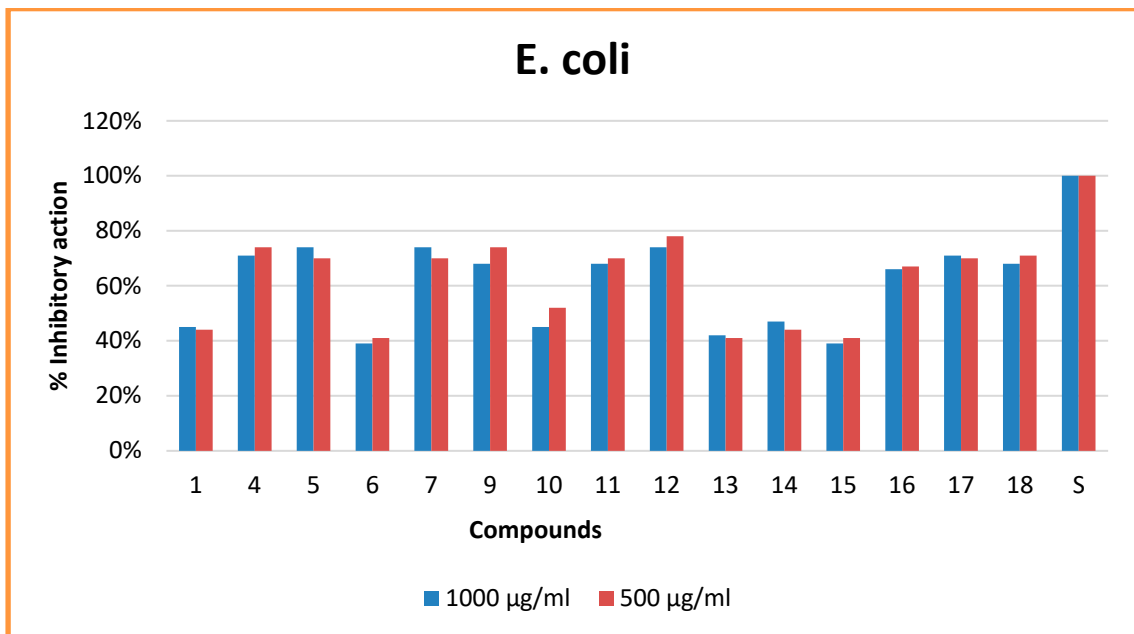


Chart S3: The antibacterial efficiency of synthesized compounds against *E. Coli*

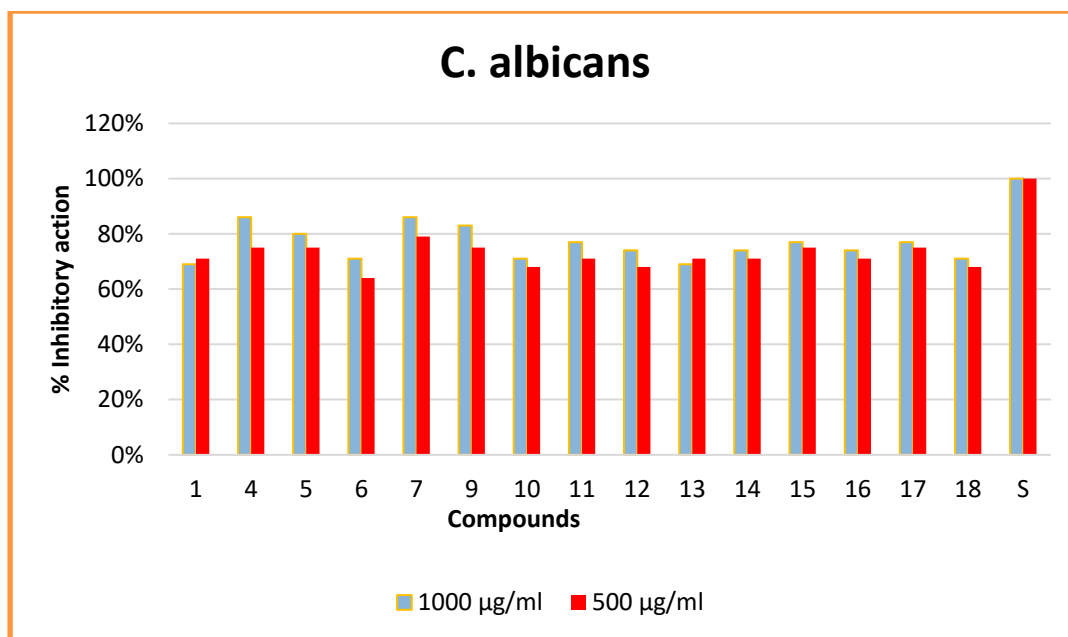


Chart S4: The antibacterial efficiency of synthesized compounds against *C. albicans*

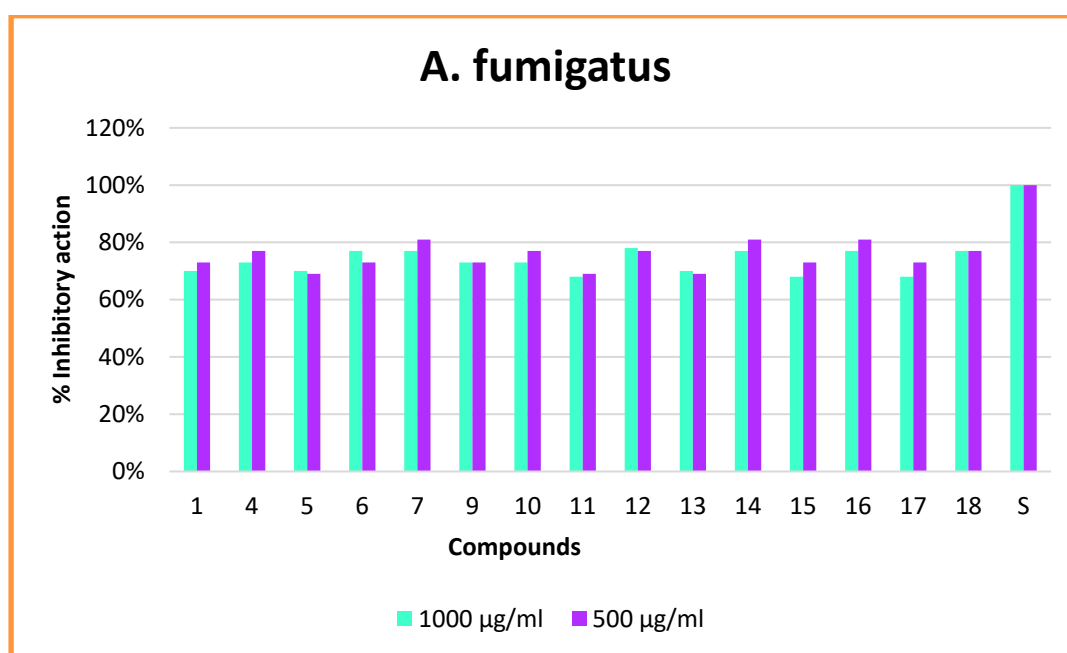


Chart S5: The antibacterial efficiency of synthesized compounds against *A. Fumigatus*