Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

DNA/BSA binding, DNA cleavage and electrochemical properties of new multidentate copper(II) complexes

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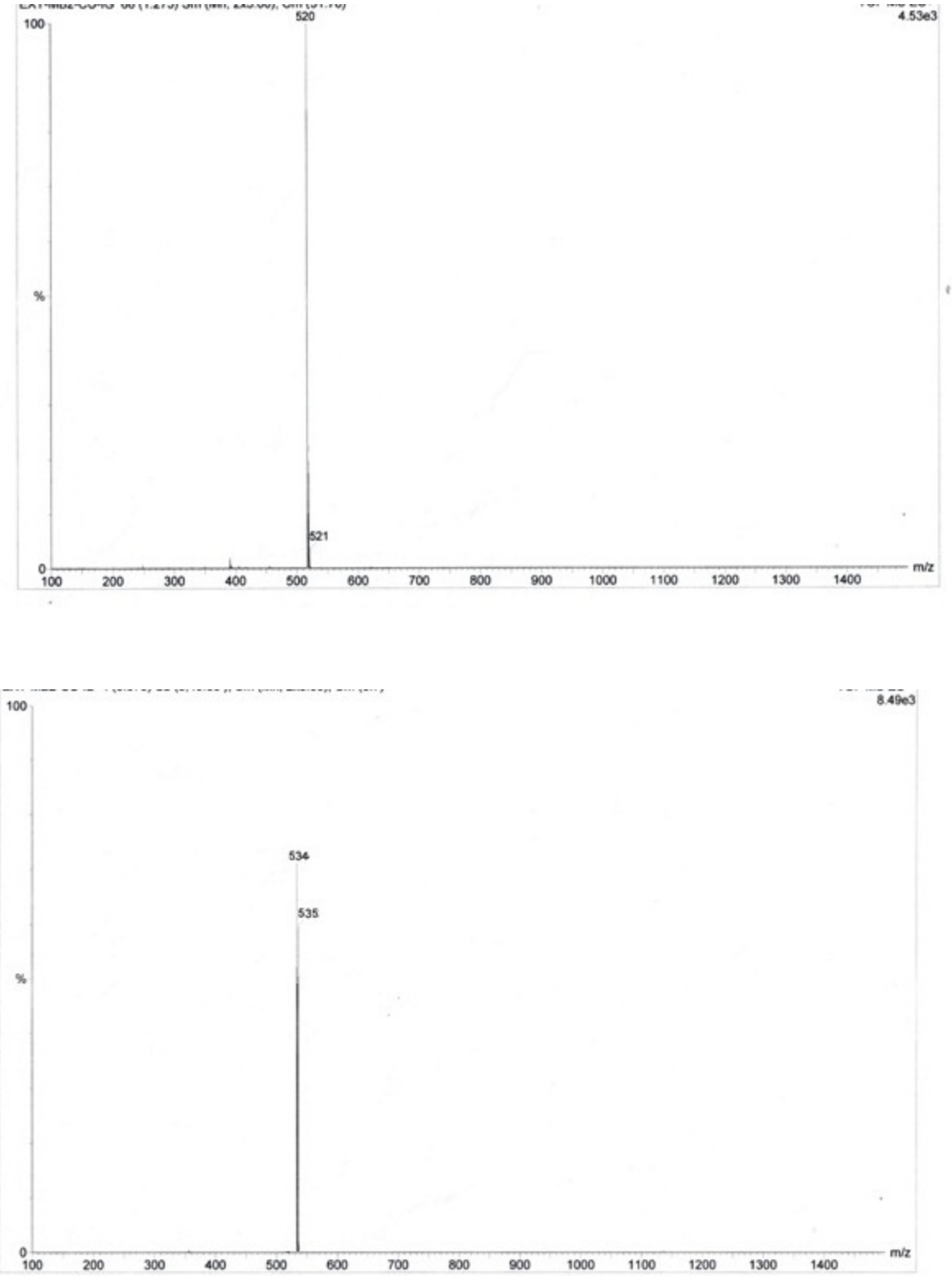
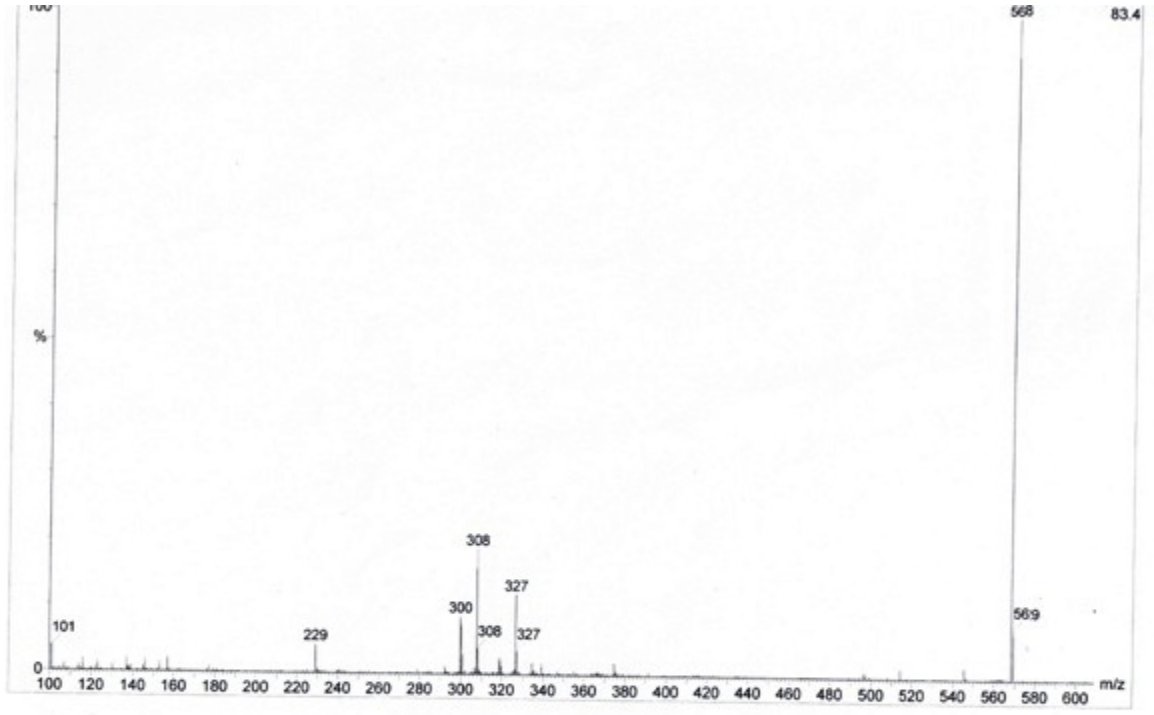


Fig. S1. ESI-MS spectrum of mono nuclear complexes (**1**) and (**2**)



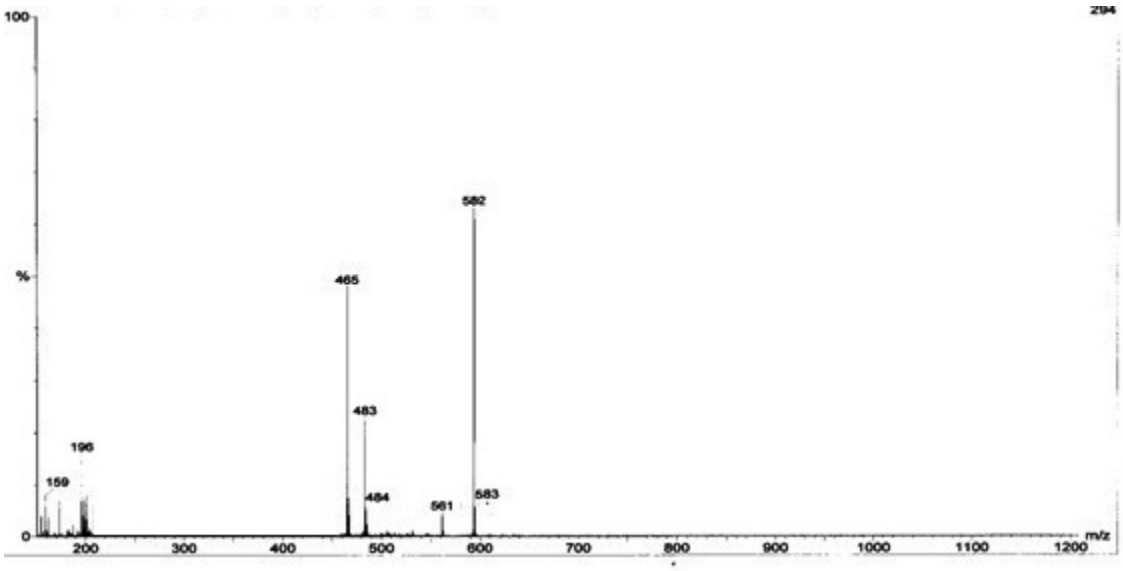


Fig. S1. ESI-MS spectrum of mono nuclear complexes (**3**) and (**5**)

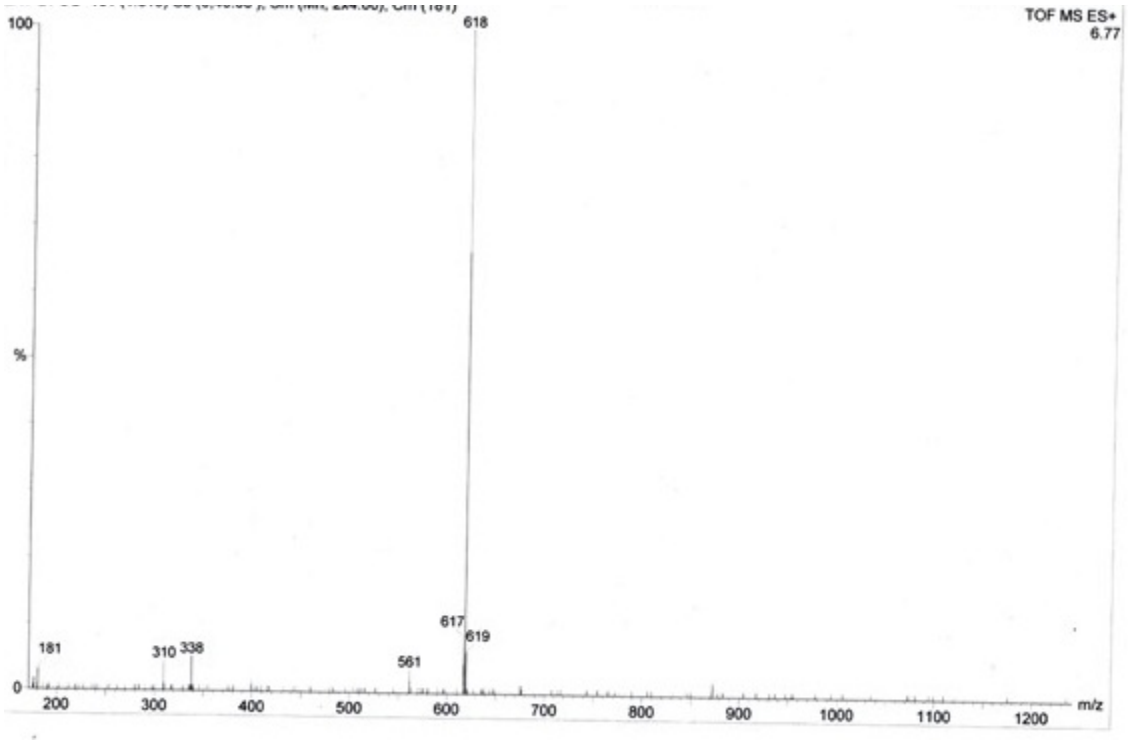


Fig. S1. ESI-MS spectrum of mono nuclear complex (**5**)

Table S1. Hydrogen bonds for complex 1 [A and deg.].

D-H...A	**d(D-H)**	**d(H...A)**	**d(D...A)**	**<(DHA)**
N(4)-H(4A)...O(2)	0.849(18)	1.95(3)	2.620(4)	135(3)
C(4)-H(4)...O(6)#1	0.93	2.61	3.261(12)	127.7
C(7)-H(7)...O(4)#2	0.93	2.29	3.218(8)	173.1
C(18)-H(18A)...O(6)#3	0.97	2.75	3.622(14)	149.7
C(14)-H(14)...O(5)#3	0.93	2.49	3.216(9)	135.1
C(17)-H(17A)...O(4)	0.97	2.57	3.470(9)	154.2

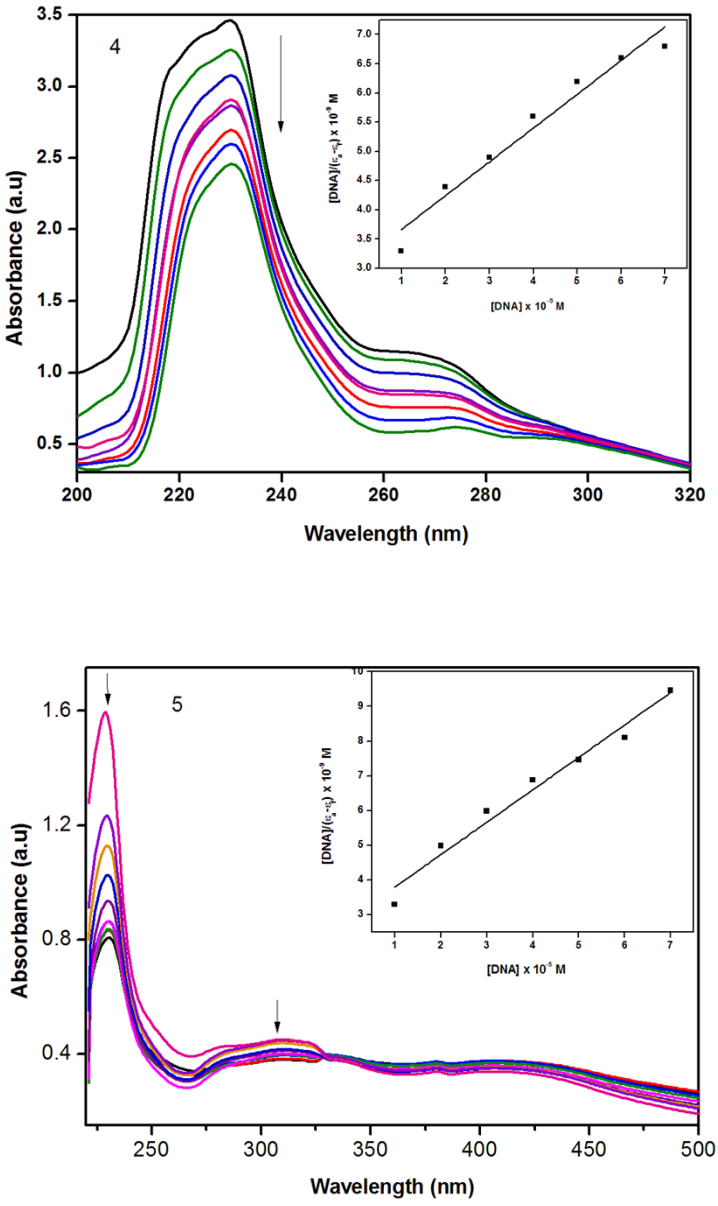


Fig. S2 Absorption spectra of the complex (**4**) and (**5**) in the absence and presence of increasing amounts of CT-DNA (0 – 250 µM) at 25 ºC in 50 mM Tris-HCl (pH = 7.2).

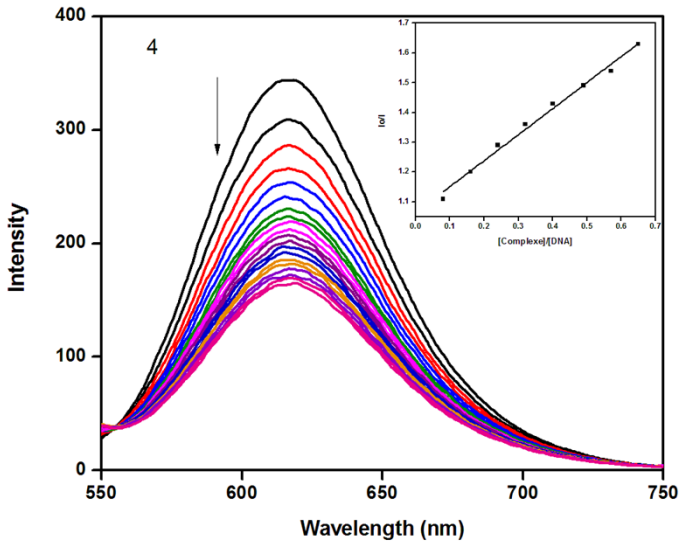


Fig. S3 Emission spectra (λ_{ex} = 520 nm) of EB-DNA in Tris-HCl buffer in the absence and presence of the Complex (**4**). [EtBr] = 4 µM, [DNA] = 40 µM. Arrow shows the decrease on intensity of EtBr-DNA upon increasing the concentration of complex.

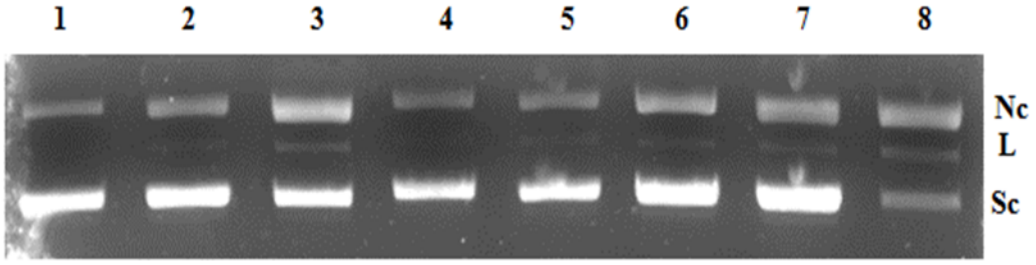


Fig. S4 Gel electrophoresis diagrams shows the cleavage of supercoiled pBR322 DNA (150 µg mL^{-1}) by copper(II) complexes (**3**) (0.03 mM) in presence of mercaptoethanol(ME) (1 mM) as reducing agent in (50 mM)Tris-HCl buffer at pH 7.2 and 37 °C with an incubation time of 3 h and different quenchers. Lane 1, DNA control; Lane 2, DNA + ME + $Cu(ClO_4)_2.6H_2O$; Lane 3, DNA + ME + (**3**); Lane 4, DNA + ME + (**3**) + NaN_3 (2 µL); Lane 5, DNA + ME + (**3**) + $_L$-histidine (1 mM); Lane 6, DNA + ME + (**3**) + DMSO (1 mM); Lane 7, DNA + ME + (**3**) + KI; Lane 8, DNA + ME + (**3**) + SOD (5 units);

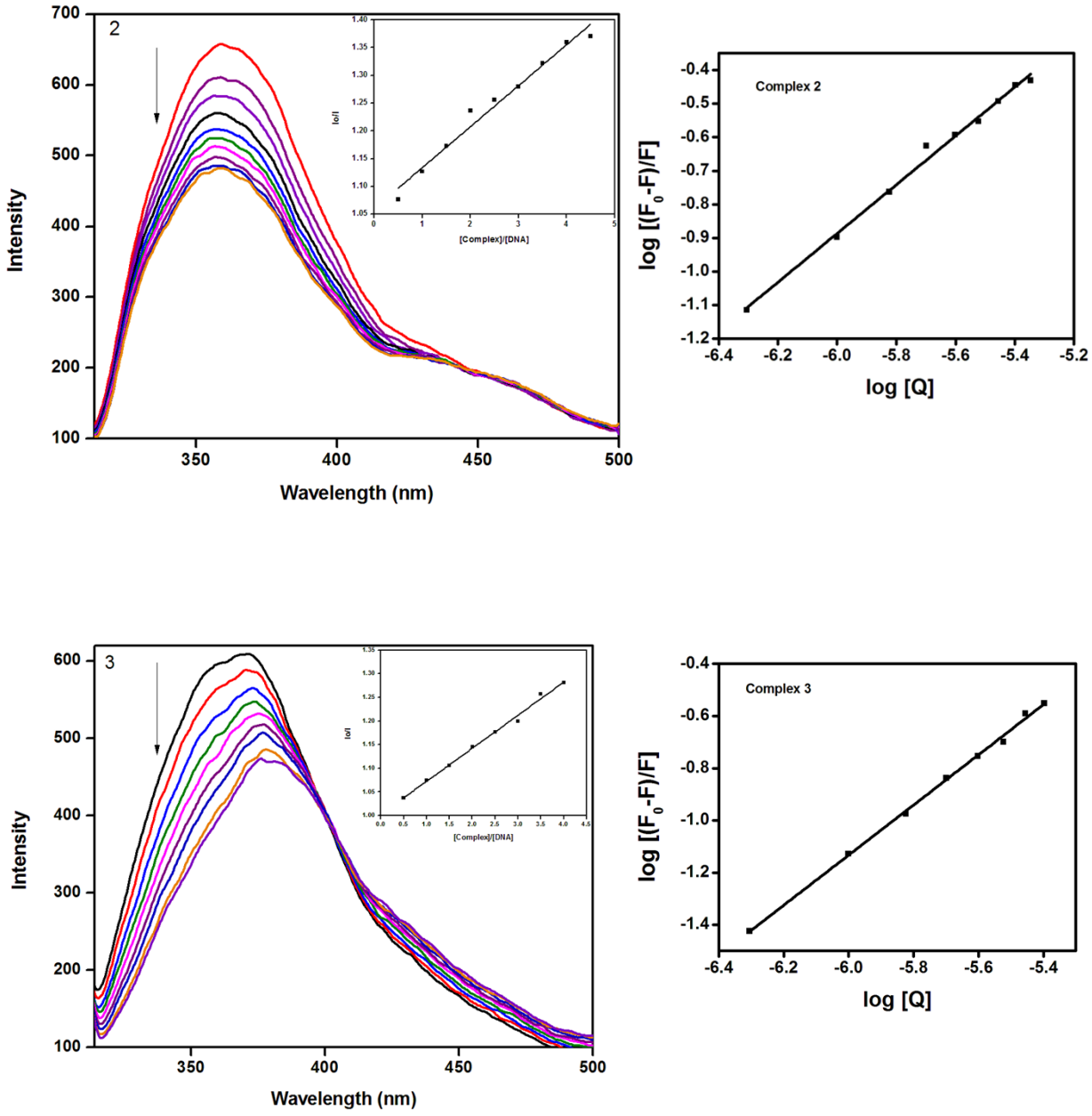


Fig. S5 Changes in the fluorescence spectra and double-logrithm plot of BSA upon increasing complex (**2**) and complex (**3**) concentration at 300 K. The concentration of BSA is 1 μM and complex concentration range from 0.0 to 10 μM, pH = 7.2 and λex = 280 nm.

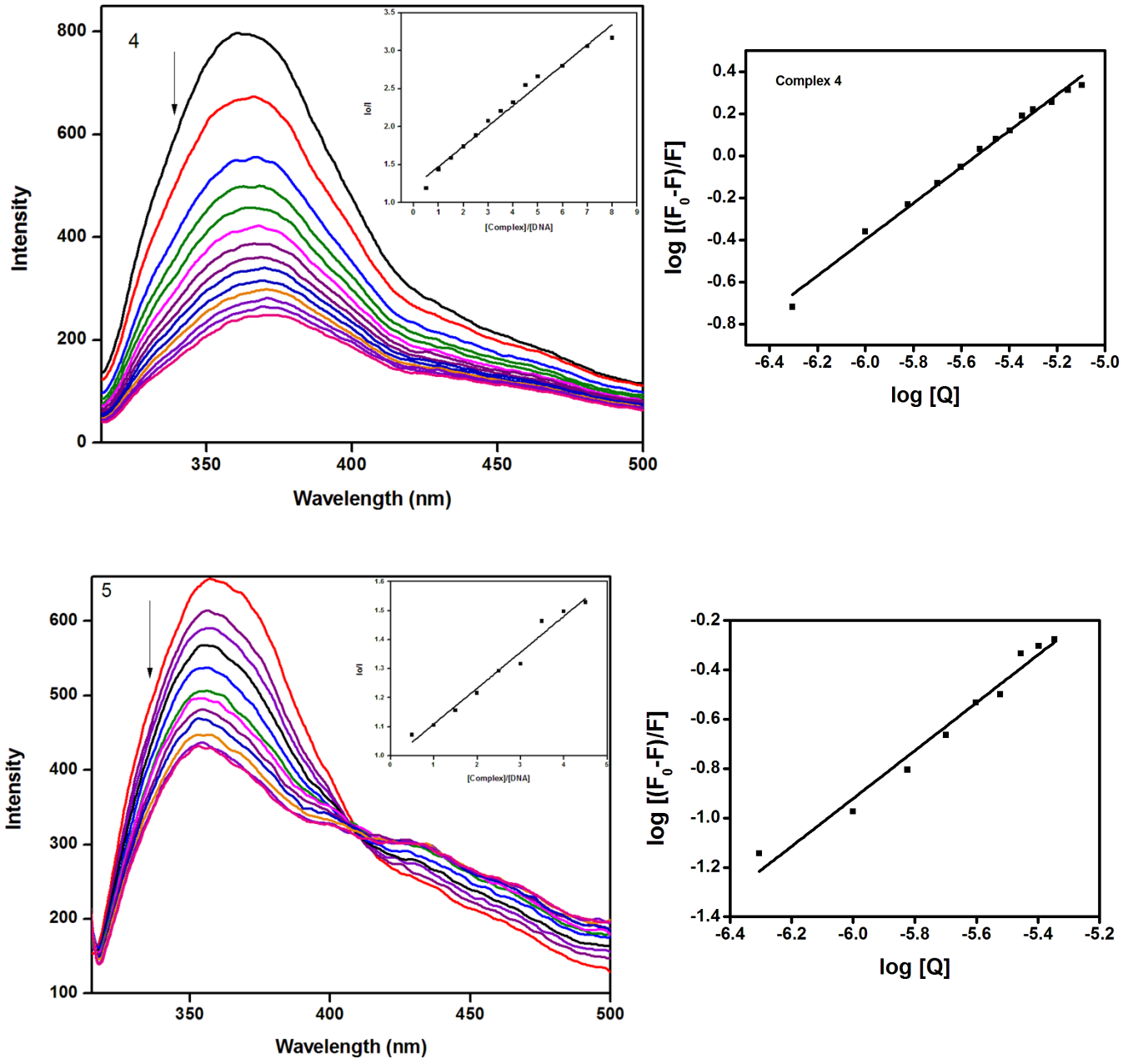


Fig. S5 Changes in the fluorescence spectra and double-logrithm plot of BSA upon increasing complex (**4**) and complex (**5**) concentration at 300 K. The concentration of BSA is 1 μM and complex concentration range from 0.0 to 10 μM, pH = 7.2 and λex = 280 nm.

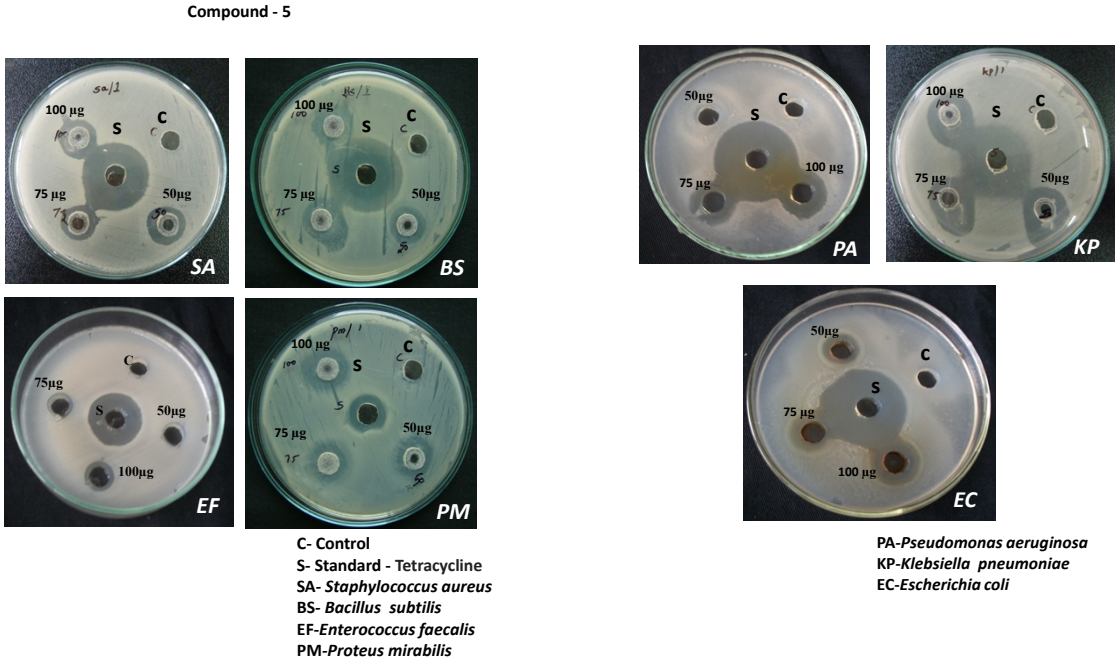


Fig. S6 Antimicrobial activity of complex (**5**) against S. aureus, B.subtilis, E. faecalis, P. mirabilis, P. aeruginosa, K. pneumoniae and E. coli.

Table s2 Antimicrobial activity of complex (**5**)

	Organisms	**Concentration**		
		50 µg	**75 µg**	**100 µg**
		Zone of inhibition, mm		
(**5**)	*Staphylococcus aureus*	12	15	17
	Bacillus subtilis	11	12	16
	Enterococcus faecalis	11	14	15
	Proteus mirabilis	11	12	15
	Pseudomonas aeruginosa	14	18	22
	Klebsiella pneumonia	12	16	16
	Escherichia coli	11	12	17