Electronic Supplementary Material (ESI) for RSC Advances

Supporting Information

For

Bi-nuclear Ru(II) complexes of bis-chalcone and bis-flavonol: Synthesis, characterization, photo cleavage of DNA and Topoisomerase I inhibition Activity

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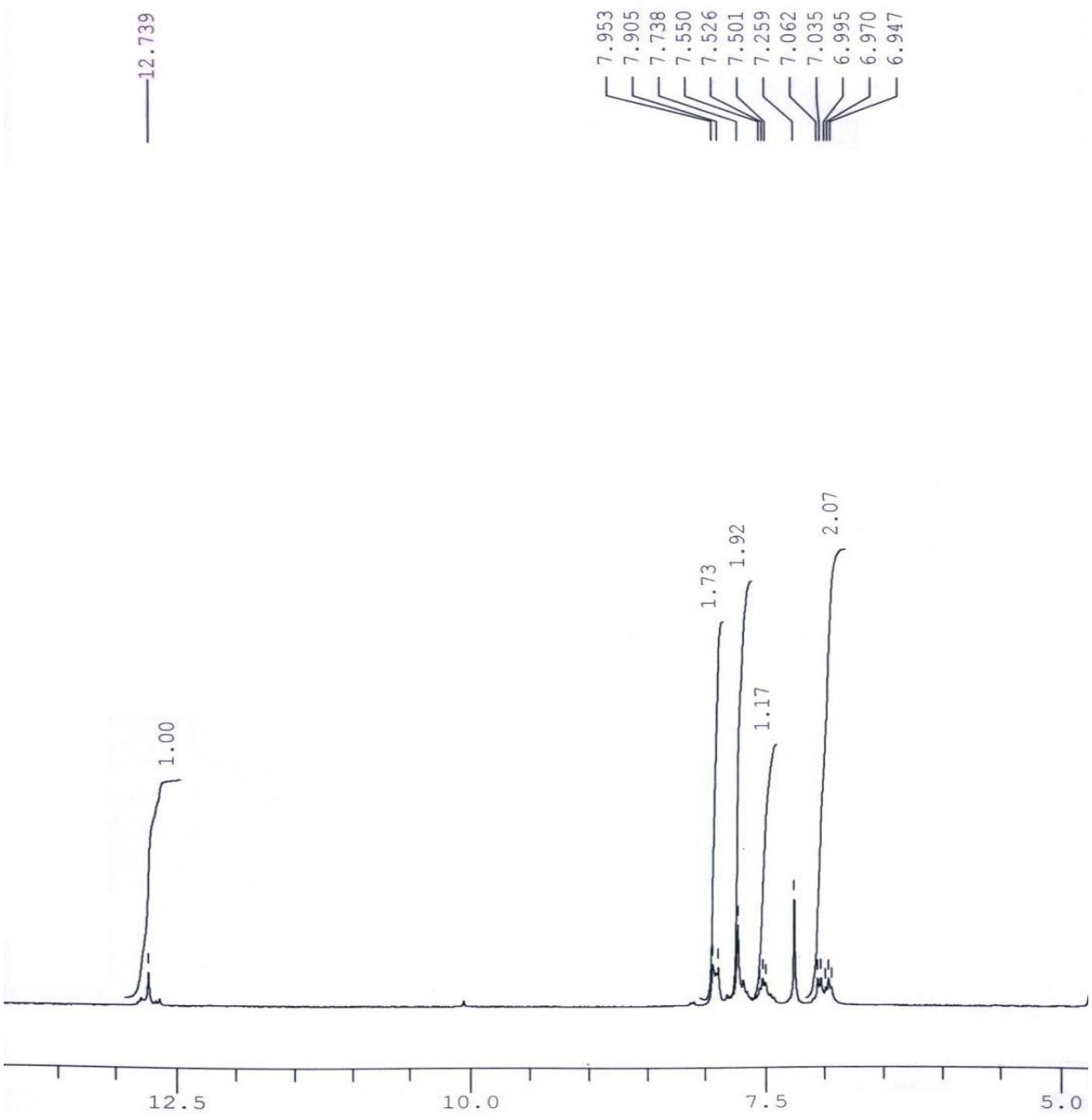
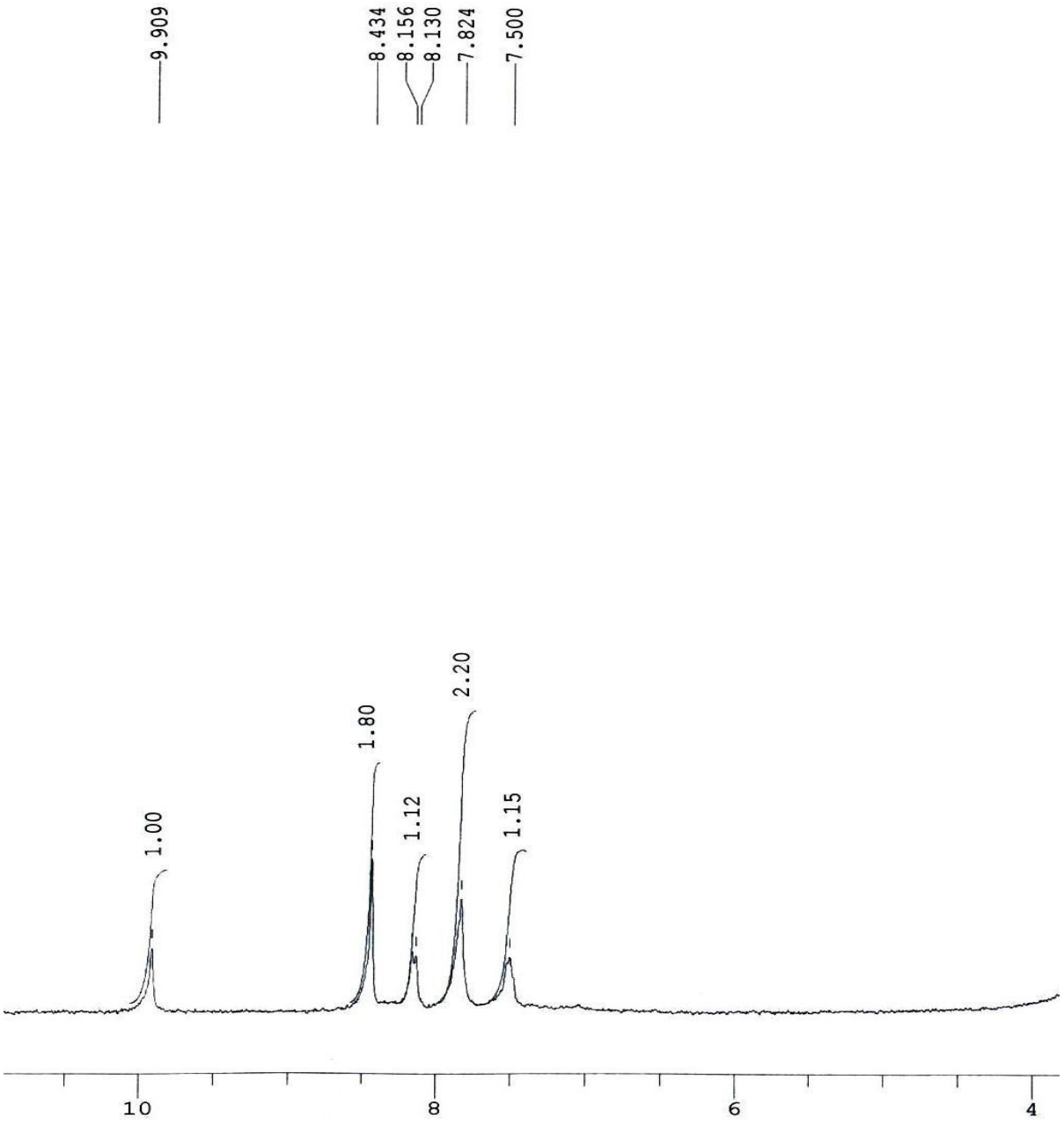
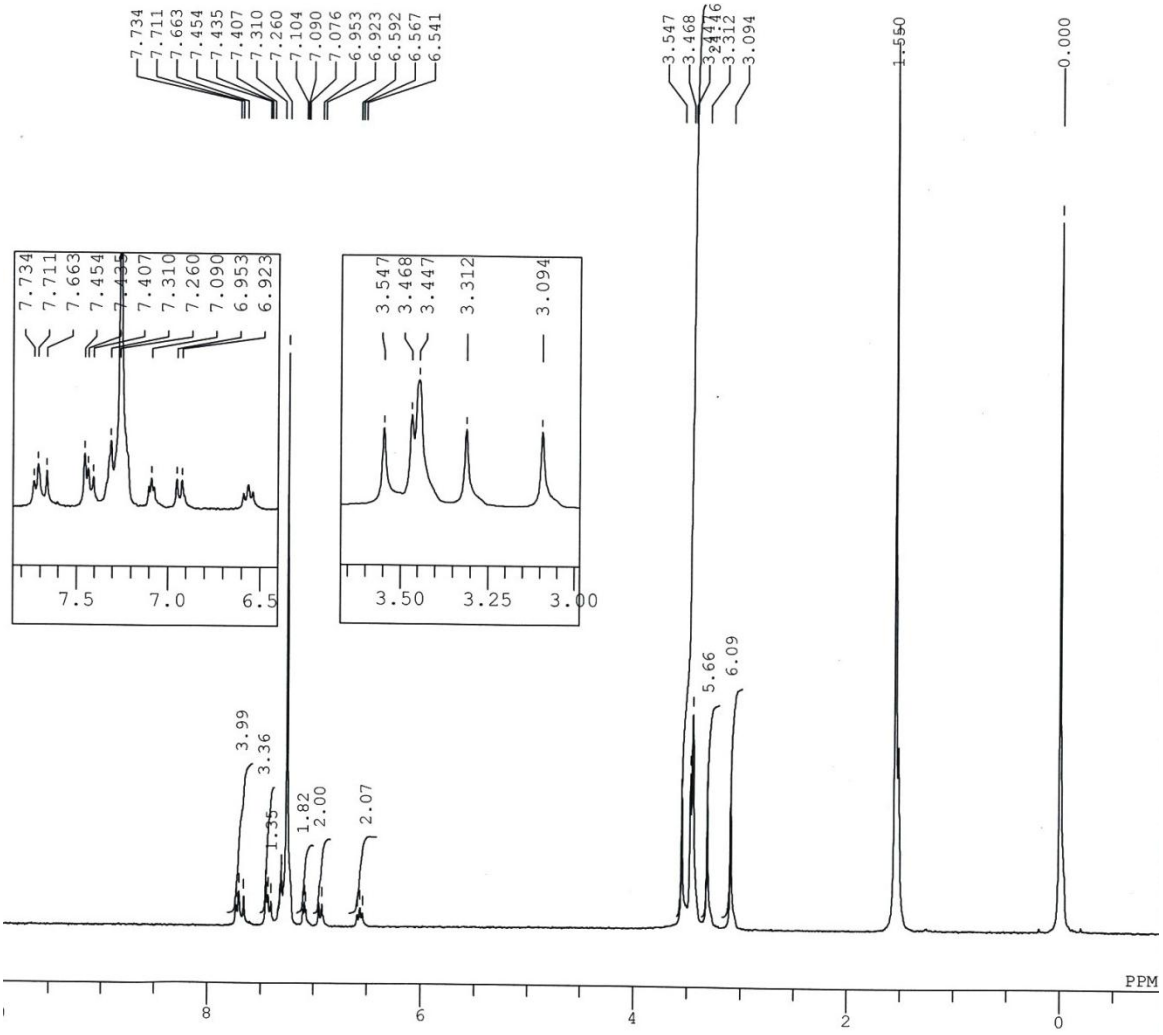
S1



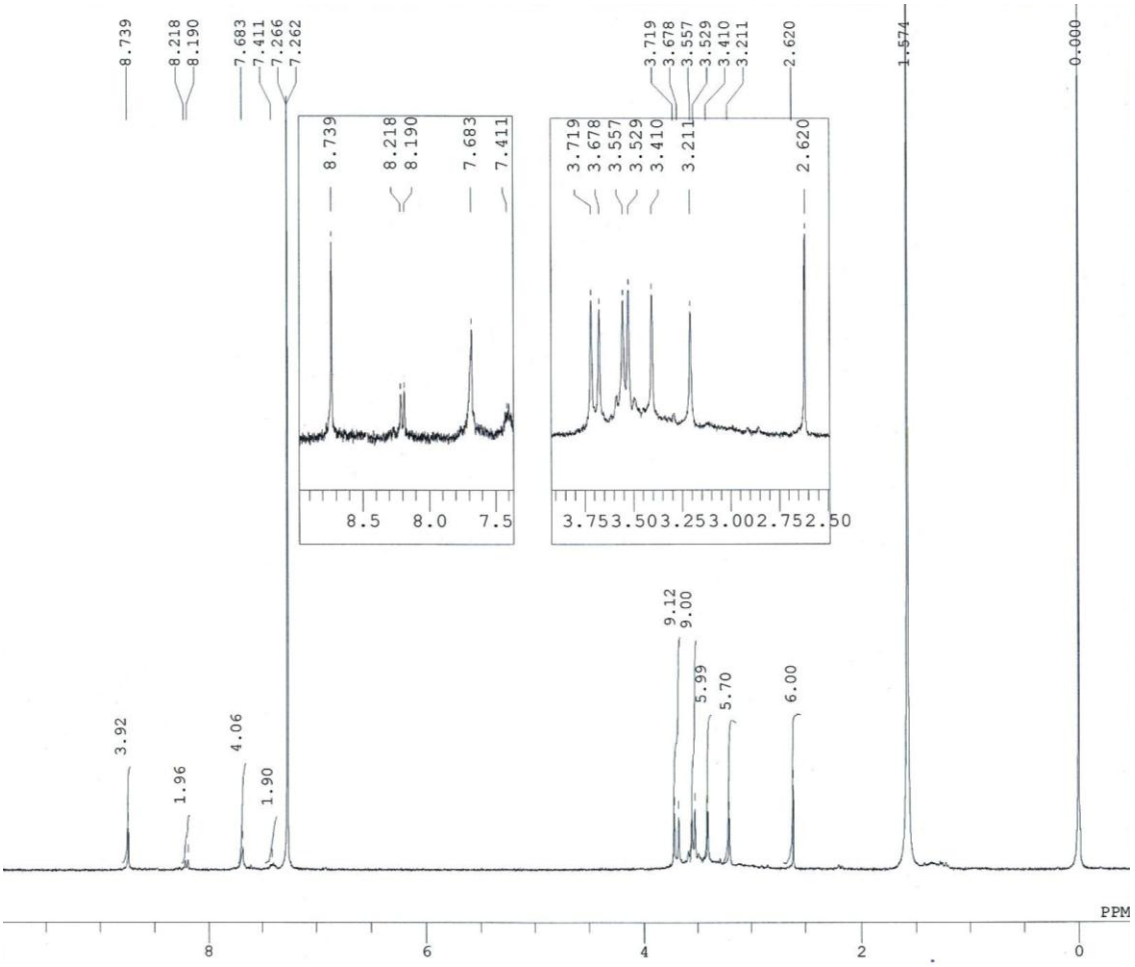
^{1}H NMR of L^{1}H$_2$,



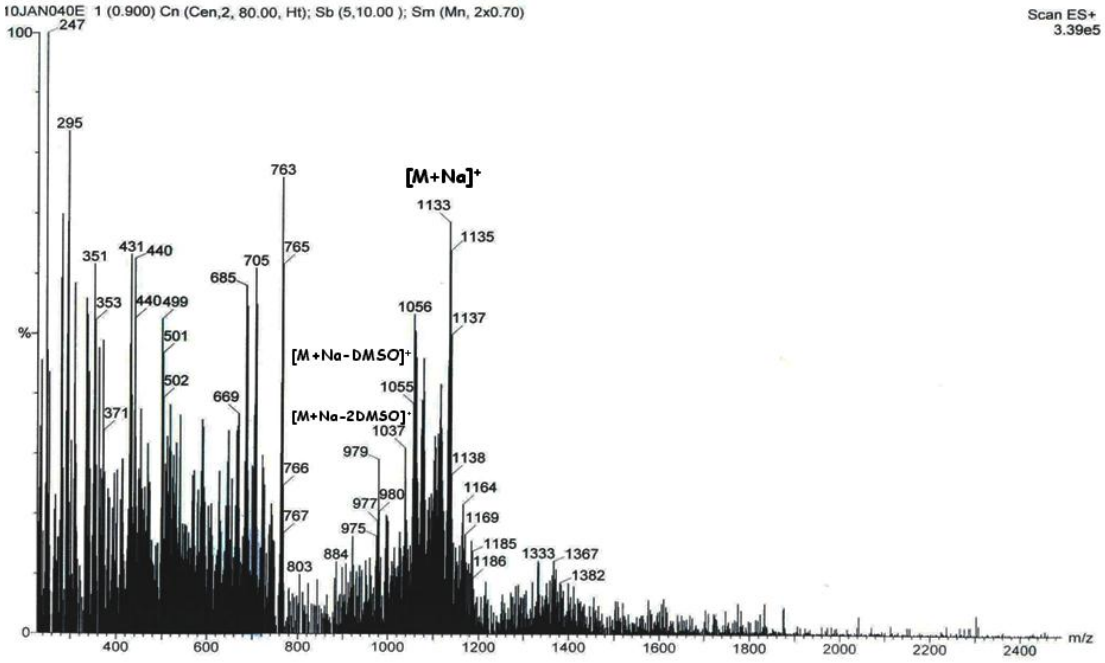
^{1}H NMR of L^{2}H$_{2}$,



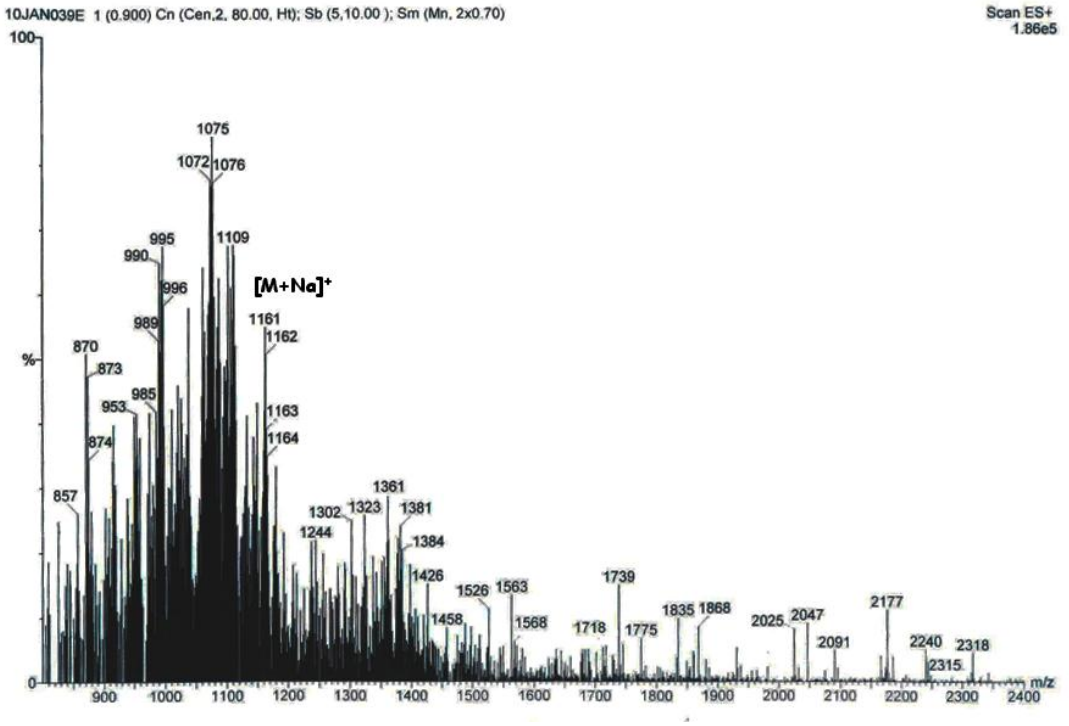
^{1}H NMR of complex **1**



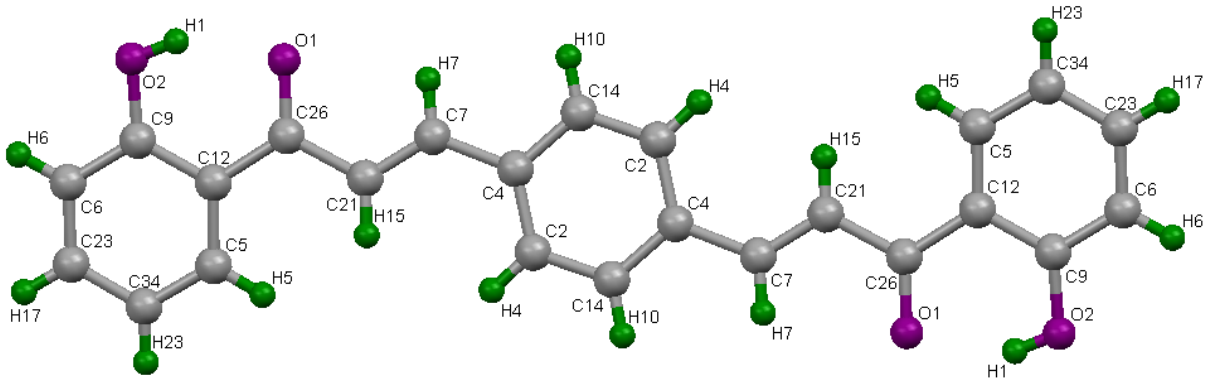
^{1}H NMR of complex 2



ESI-MS of complex 1



ESI-MS of complex 2



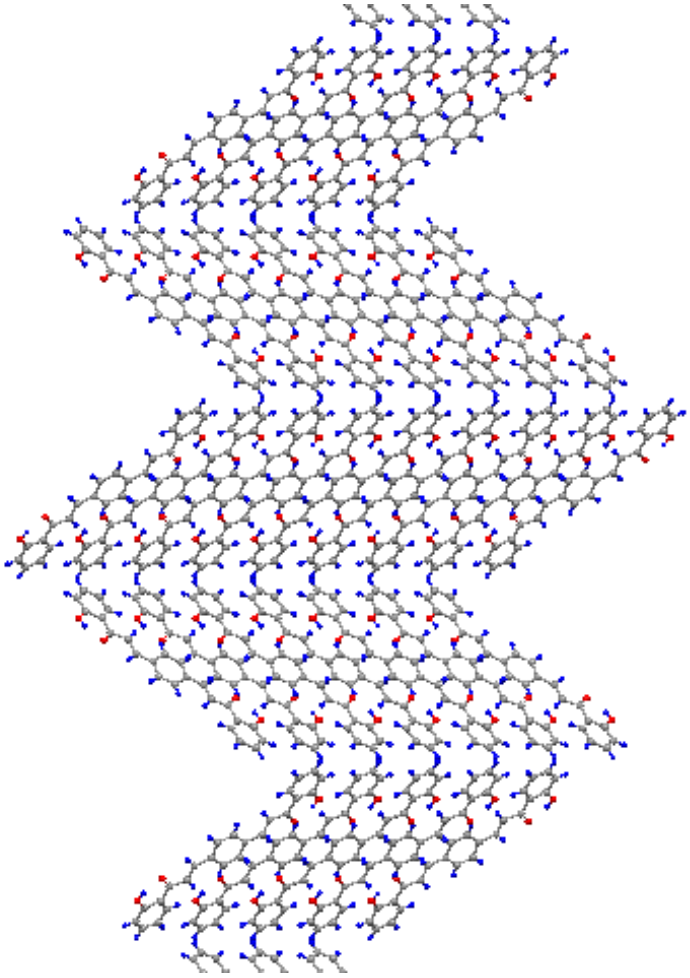
Molecular structure of $\mathbf{L^1H_2}$

Summary of Crystallographic data for L^1H_2

Parameters	L^1H_2
Formula	$C_{24}H_{18}O_4$
M	370.38
Crystal system	Monoclinic
Temperature	293(2) K
Space group	*P 21/c*
a/Å	4.967(5)
b/Å	27.181(14)
c/Å	7.764(7)
α(°)	90
β(°)	117.55(6)
γ(°)	90
V/Å^3	929.3(13)
Z	2
D_c/Mg·m^{-3}	1.324
Reflns. collected	3448
Reflns. unique	2580
R(*int*)	0.0532
Refinement method	Full-matrix, least squares on F^2
wR_2	0.0538
R_1	0.0532
GoF	0.735

Selected bond lengths (Å) and angles (º)

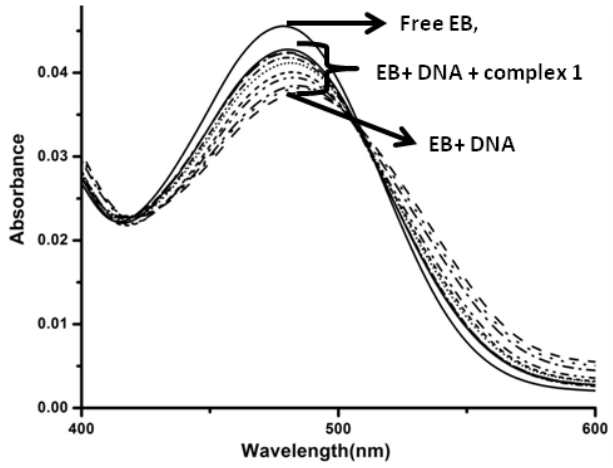
L^1H_2			
O(3)-C(17)	1.245(2)	C(2)-C(1)-C(16)	123.01(16)
O(4)-C(35)	1.342(2)	O(2)-C(12)-C(26)	117.78(17)
C(8)-C(23)	1.405(2)	C(12)-O(2)-H(2)	109.5
O(2)-H(2)	0.8200	C(39)-C(18)-H(18)	119.4



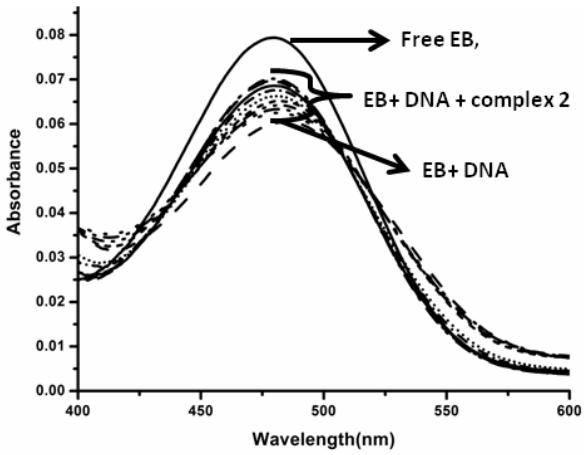
Ladder like supramolecular structure of **L^1H_2**

Competitive binding of complexes with EB bound DNA using spectroscopic titrations

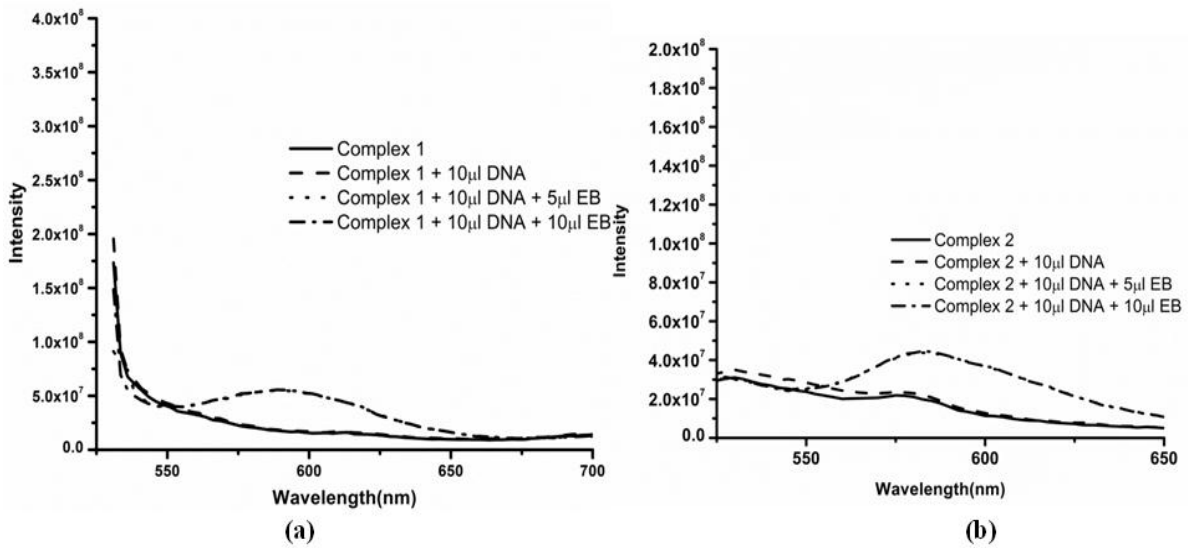
The competitive binding experiments were performed on Jasco UV-630 spectrophotometer. Absorption titrations were performed by keeping the concentration of the EB (10 μM), DNA (10 μM) constant and by varying [complexes **1** and **2]** = 0 – 0.325μM. It is well known that free ethidium bromide shows absorbance at 490 nm. After addition of CT-DNA (10 μM), a decrease observed in absorbance supported intercalation of EB into DNA base stacks. However, on addition of complexes (**1** and **2**) separately to EB-DNA solution, absorbance again increased and finally gets saturated. Thus, some fraction of EB bound initially to DNA is displaced by both complexes indicating that there is competitive binding of complexes (**1** and **2**) with EB for DNA.



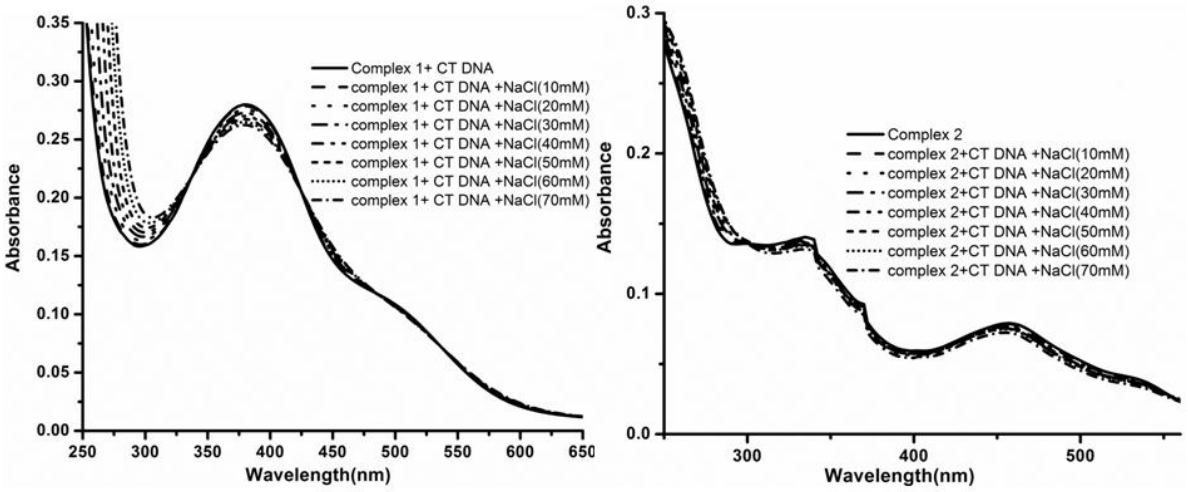
(a)



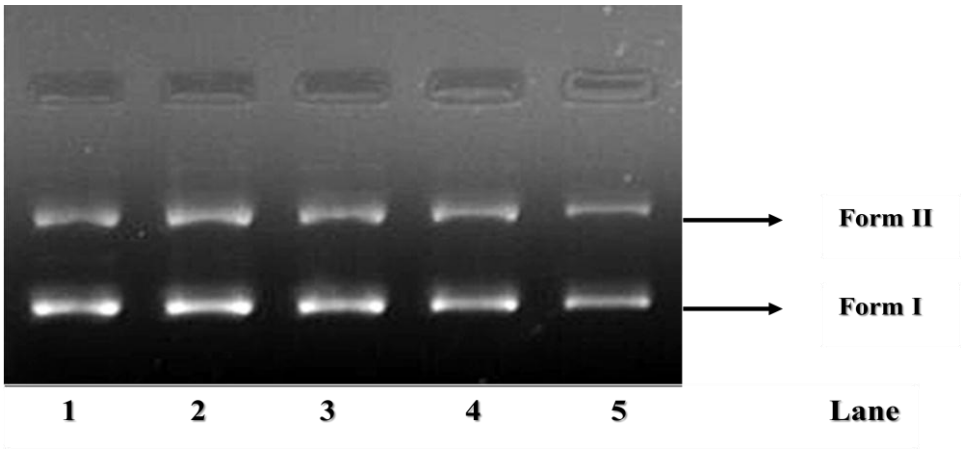
(b)



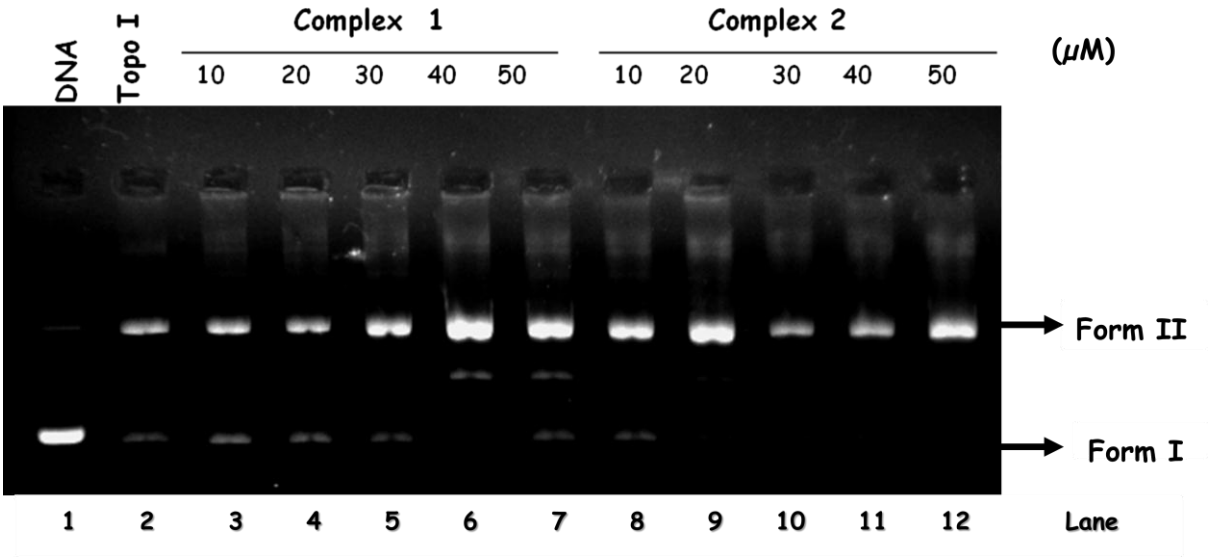
(a) (b)



(a) **(b)**



Ethidium bromide stained agarose gel (1 %) of pBR322 plasmid DNA (300 ng μL^{-1}) after 1 h of incubation in dark. Lane 1: DNA control; Lane 2: DNA + L^1H_2 (100 μM); Lane 3: DNA + L^2H_2 (100 μM), Lane 4: DNA + complex **1** (100 μM); Lane 5: DNA + complex **2** (100 μM).



Effects of different lower concentrations of complexes **1** and complex **2** on the activity of DNA topoisomerase I.