

## Electronic Supplementary Data

# CT-DNA-binding and biological activity of mononuclear copper(II) complexes with imidazo-phenanthroline ligands

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### Photoactivated Cleavage of pBR 322 DNA by Copper Complex

The standard procedures have used for identification, separation and fragmentation DNA that is electrophoresis [1, 2]. Beauty of this technique is, bands containing even small about of DNA (~1-50  $\mu\text{g}$ ) level can also be find by agarose gel in the UV light[3, 4]. In the present study the efficiency of the sensitization of DNA cleave of the complex was studied by irradiating it with plasmid DNA pBR322. When the plasmid DNA was subjected to gel electrophoresis, the supercoiled form migrated faster. As showing in figure 10 the electrophoresis experiment finds that pBR322 DNA separation after interaction with the complexes **4** and irradiation at 365 nm. Cleavage was not observed for control with complex (form I/line 1) and with complex (complex4) concentration (**SI-13**) the amount of Form I of DNA reduced slowly. This suggested that the metal complex have been bind to DNA base pairs.

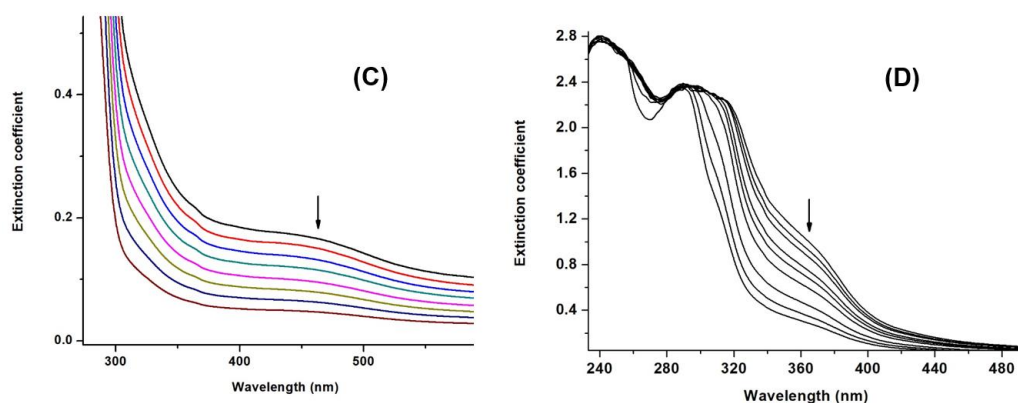


Fig. 1 — Absorption spectra of complex **3** (C), **4** (D), in the absence (top) and presence (lower) of DNA. Arrow shows the absorbance changes upon increasing DNA concentrations

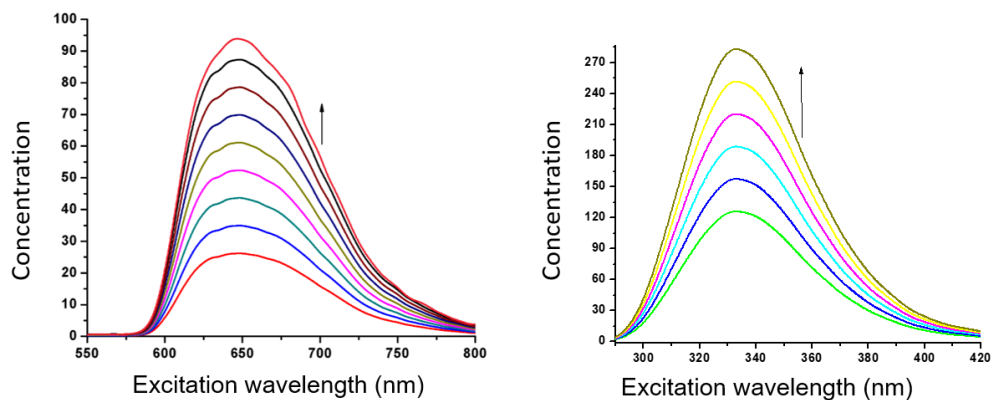


Fig. 2 — Fluorescence emission spectra of complex **1** (C) and **3** (D) in aqueous buffer (Tris 5 mM, NaCl 50 mM, pH 7.0) in the presence of CT-DNA, where [copper] = 10  $\mu$ M, [DNA]/Cu = 0, 5, and 10. The arrows indicate the intensity changes upon increasing concentration

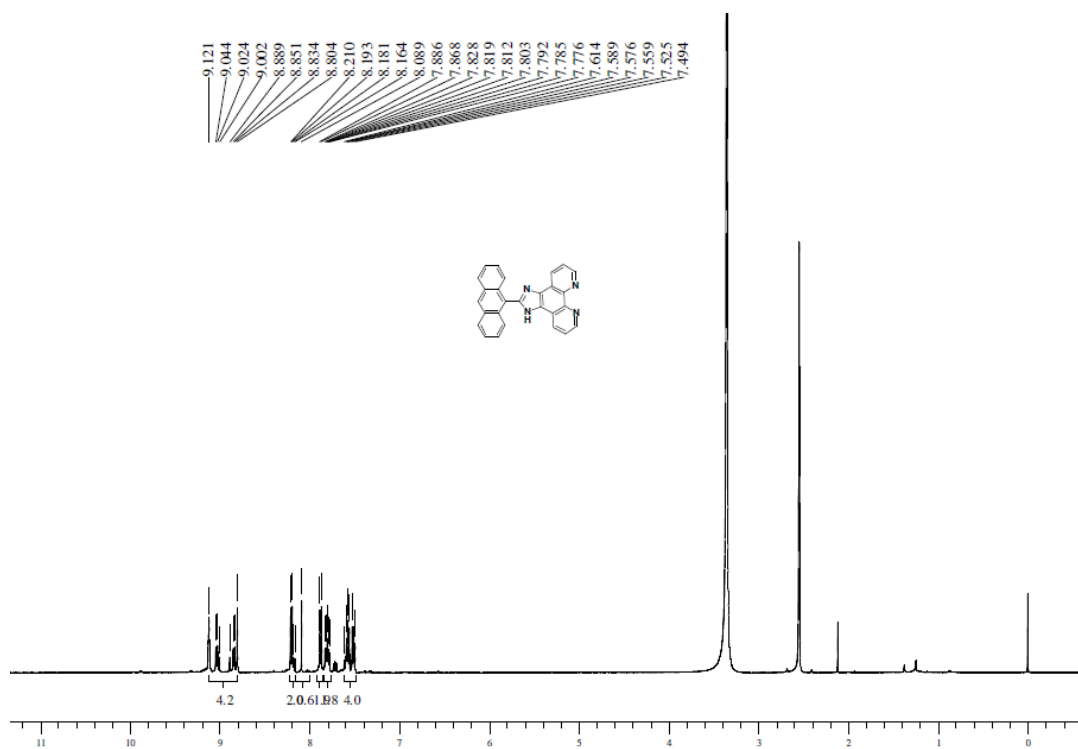


Fig. 3 — <sup>1</sup>H NMR spectrum of L1

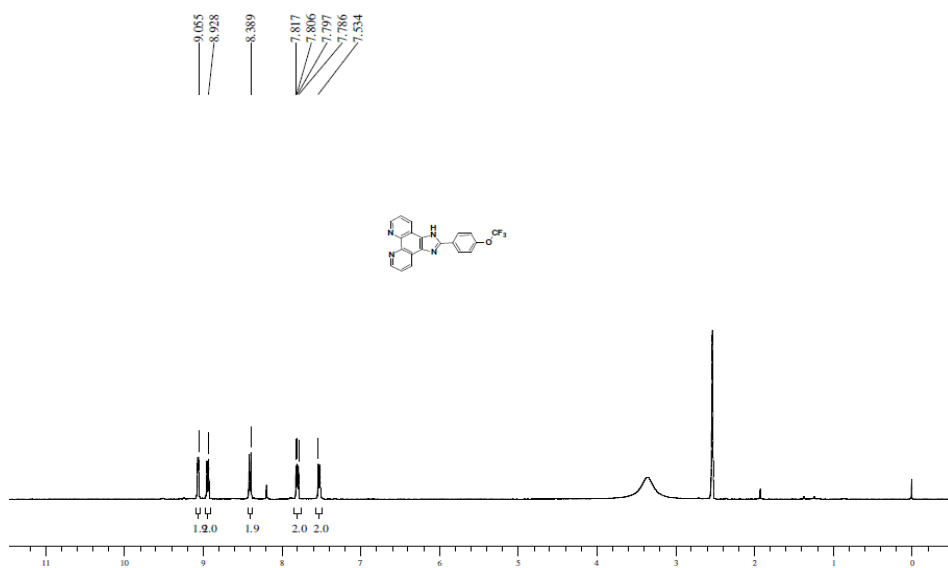


Fig. 4 — <sup>1</sup>HNMR spectrum of L2

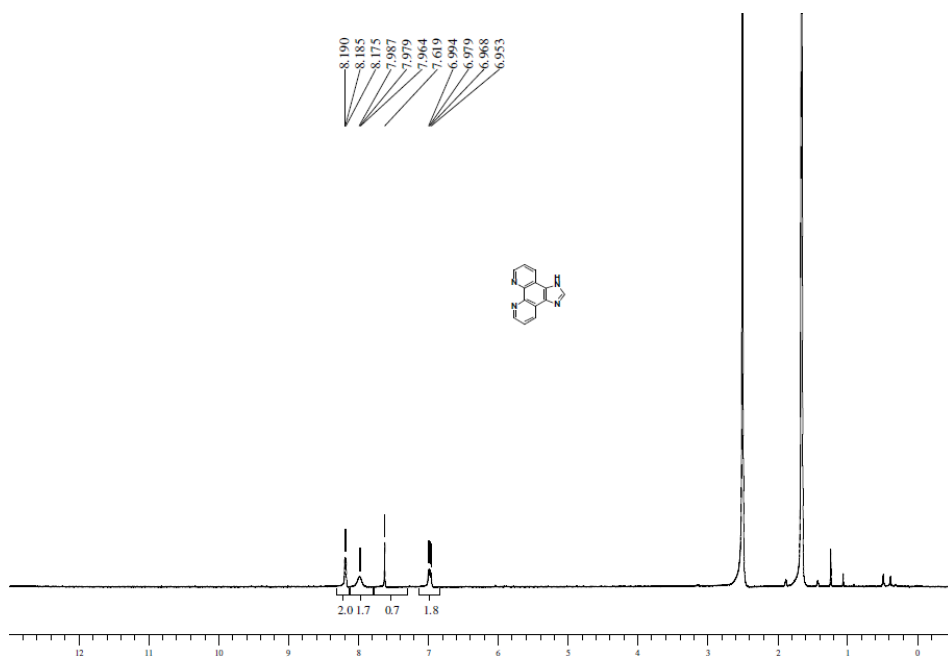


Fig. 5 — <sup>1</sup>HNMR spectrum of L3

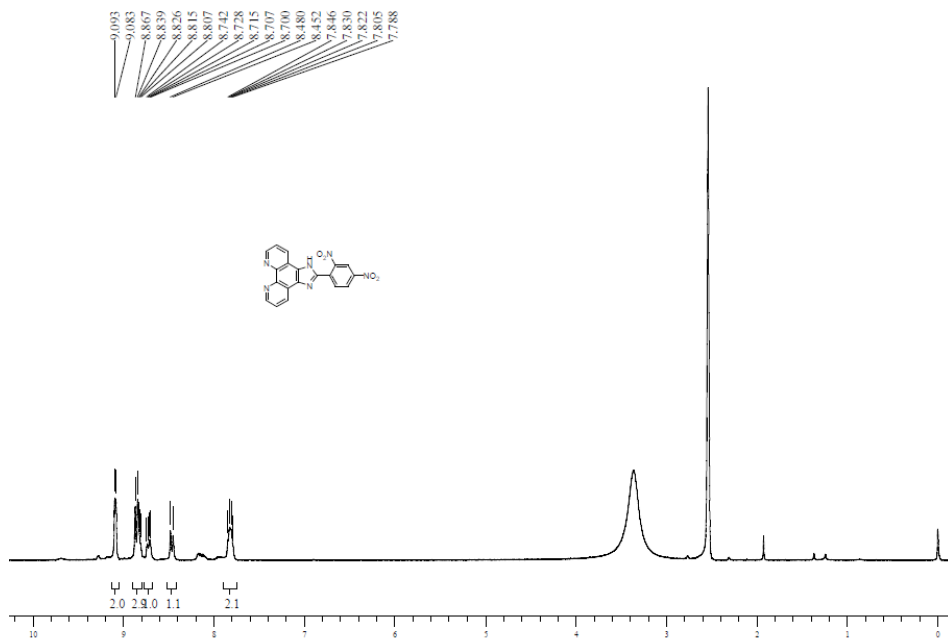


Fig. 6 — <sup>1</sup>H NMR spectrum of L4

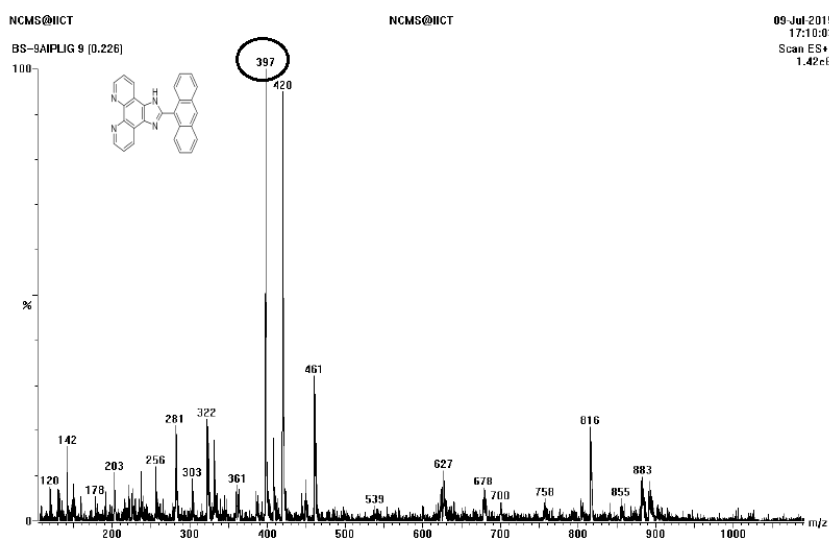


Fig. 7 —: Mass spectrum of L1

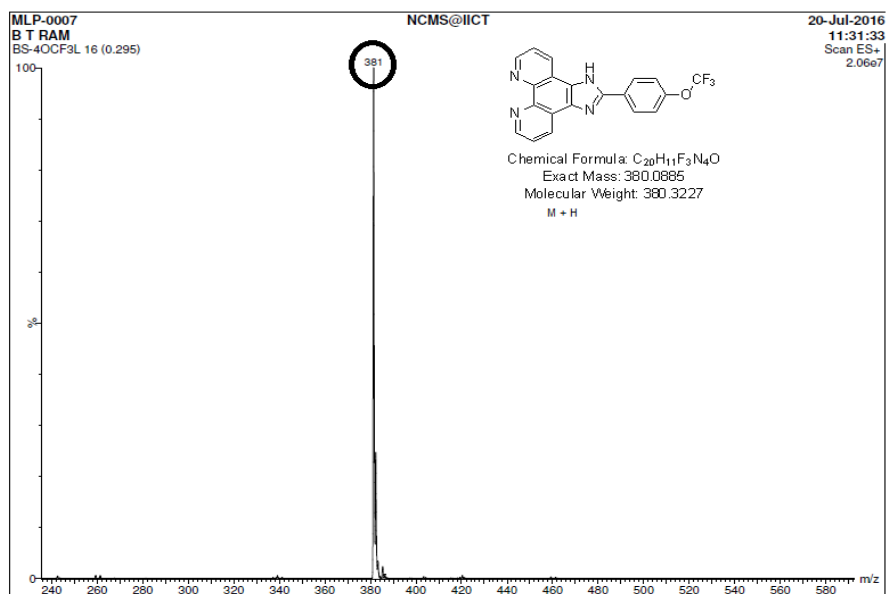


Fig. 8 — Mass spectrum of L2

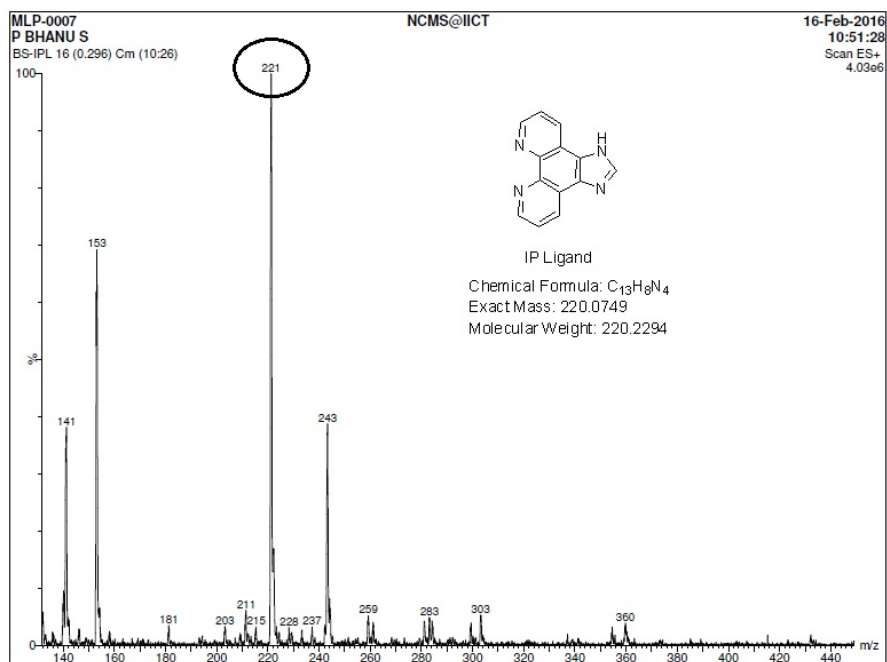


Fig. 9 — Mass spectrum of L3

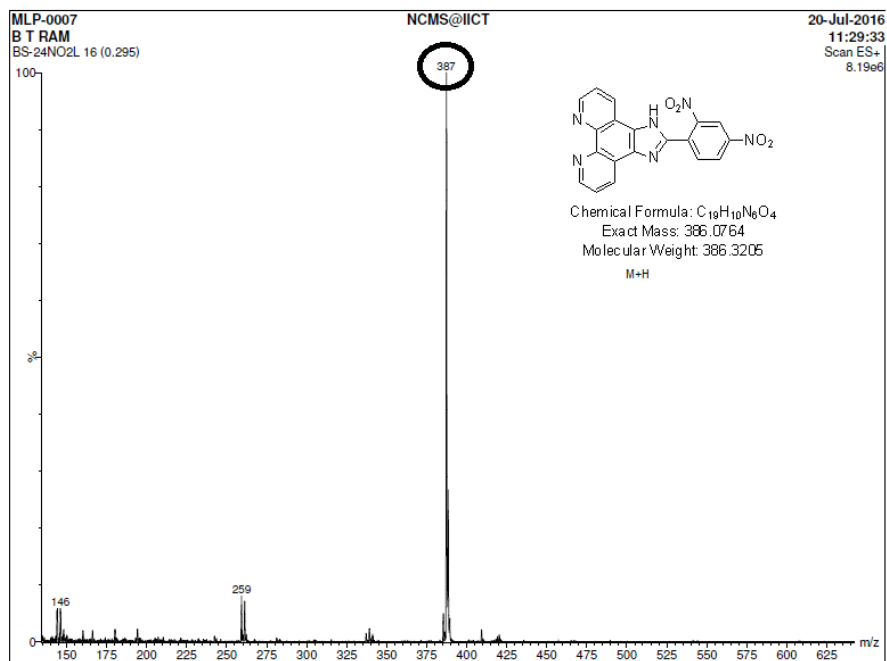


Fig. 10 — Mass spectrum of L4

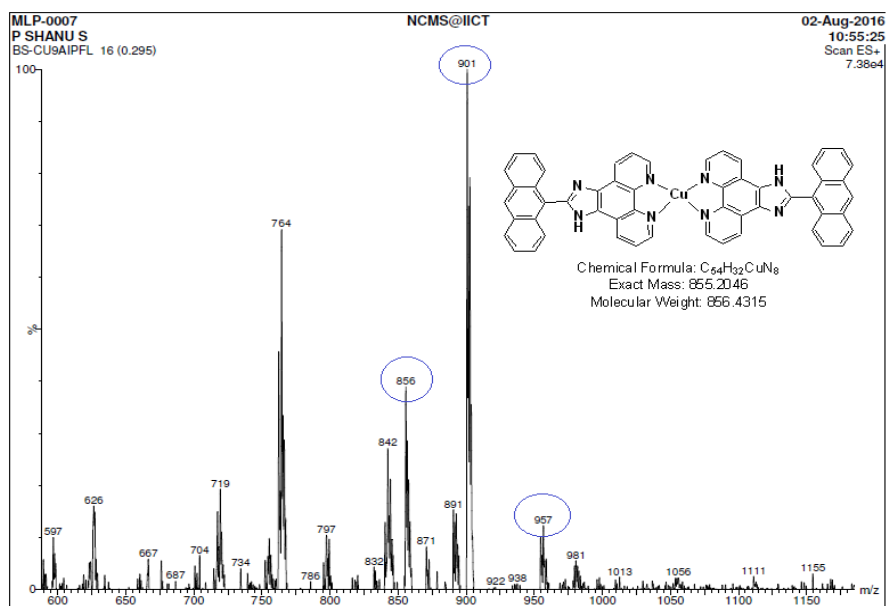


Fig. 11 — Mass spectrum of C-1

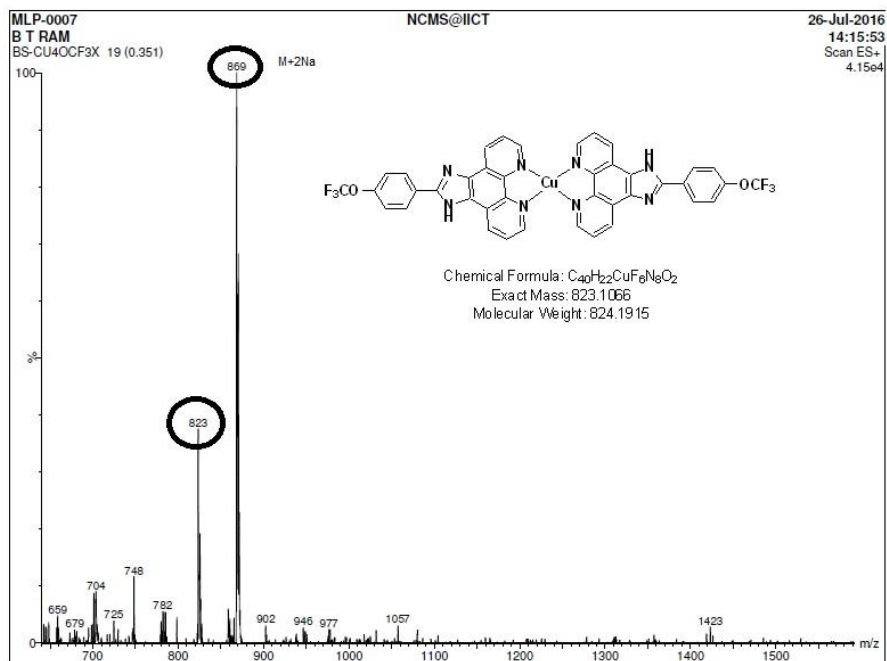


Fig. 12 — Mass spectrum of C-2

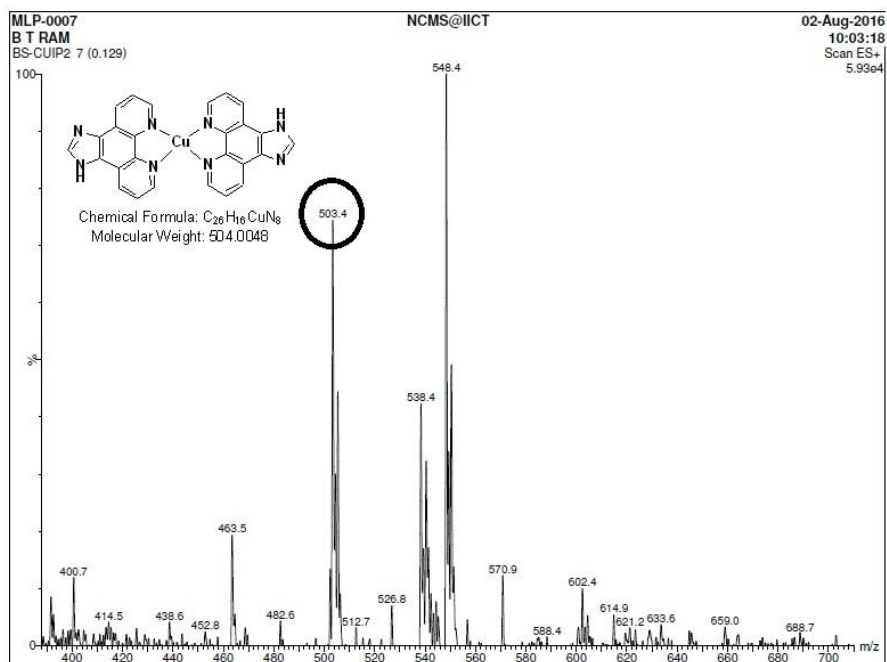


Fig. 13 — Mass spectrum of C-3



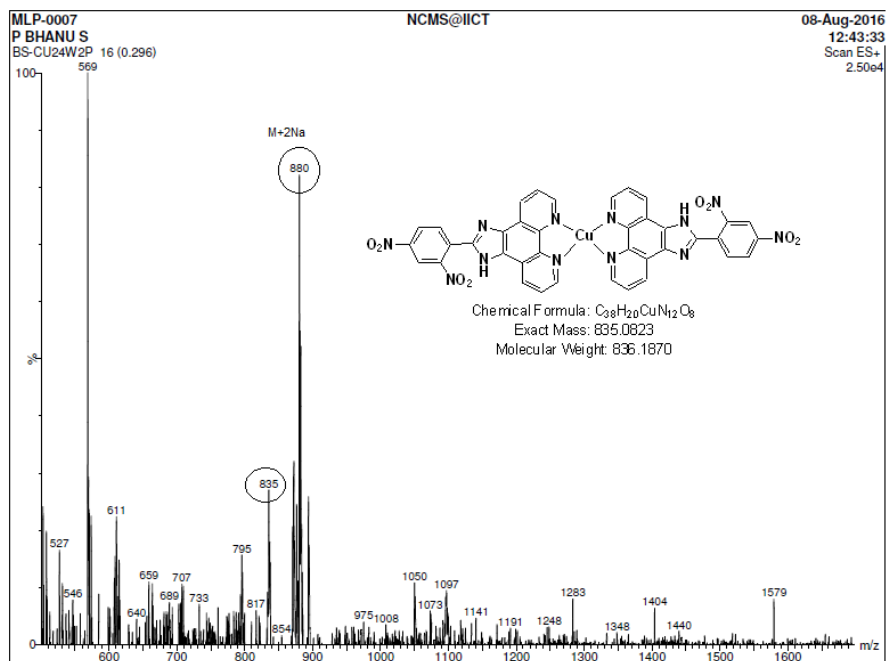


Fig. 14 — Mass spectrum of C-4

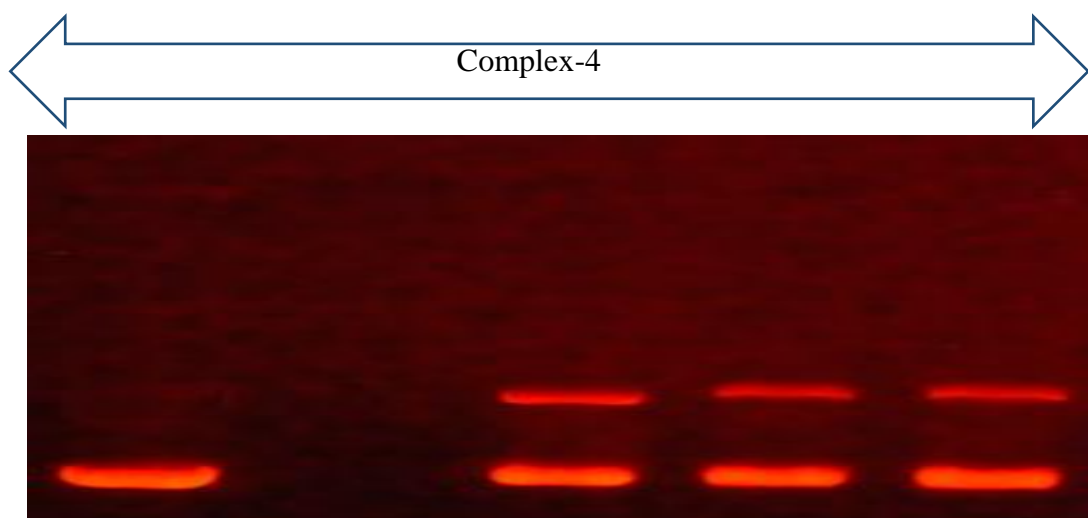


Fig. 15 — Line 1 is control. All other three gel lines represent CT-DNA addition of complex 4 (20-40  $\mu$ M)

1. C. Ajay, P. Borst, *Biochim. Biophys. Acta.* **1972**, 269, 192.
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