

Supplementary Information

A facile chemiluminescence strategy for copper (II) ion detection utilizing azothiacalix[4]arene functionalized carboxymethylcellulose polymeric ligand

Mahvash Niknezhad¹, Moslem Mansour Lakouraj^{1*}, Mohammad Javad Chaichi², Afsaneh Nemati²

¹ Department of Organic-polymer chemistry, Faculty of Chemistry, University of Mazandaran, Babolsar, 47416-95447, Iran

² Department of analytical chemistry, Faculty of Chemistry, University of Mazandaran, Babolsar, 47416-95447, Iran.

S1. ¹H NMR spectra

S1.1. ¹H NMR of *p*-tert-butyl thiocalix[4]arene (TTCA)

S1.2. ¹HNMR of thiocalix[4]arene (TCA)

S1.3. ¹HNMR of azothiacalix[4]arene (AC)

S1.4. ¹HNMR of deoxy-azido carboxymethyl cellulose (DAMC)

S2. ¹³C NMR spectra

S2.1 ¹³C NMR of TTCA

^{1*} Corresponding author:
Email address: lakouraj@umz.ac.ir (Moslem Mansour Lakouraj), Phone: (+98) 911 312 0646, Tel/Fax: +98-1135302350

S2.2. ^{13}C NMR of TCA

S2.3. ^{13}C NMR of AC

S2.4. ^{13}C NMR of DACMC

S1. ^1H NMR spectra

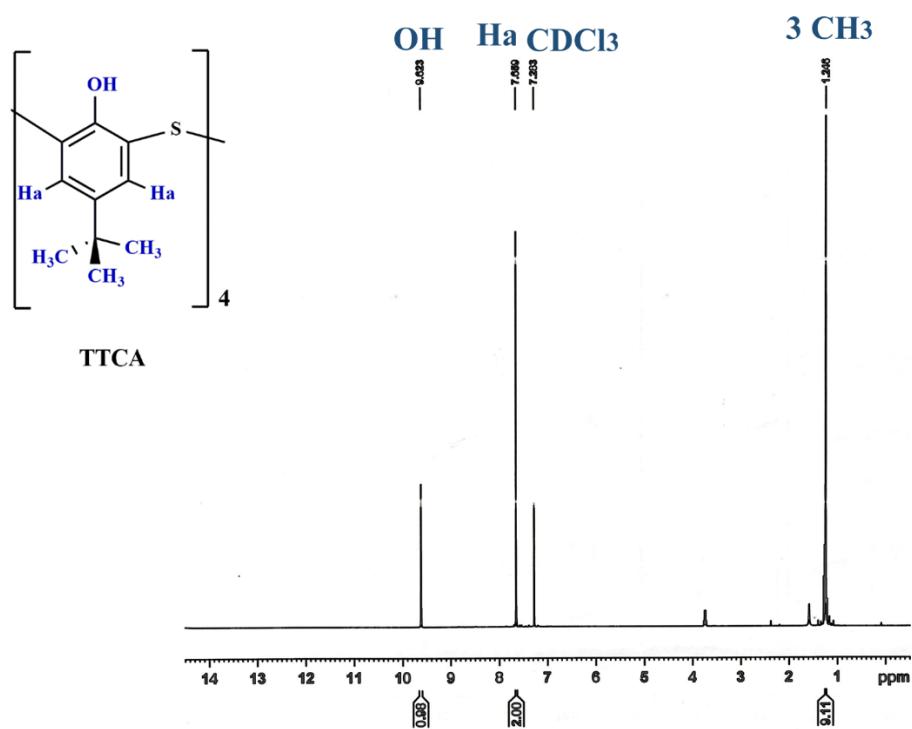


Fig S1.1 ^1H NMR spectrum of TTCA in CDCl_3

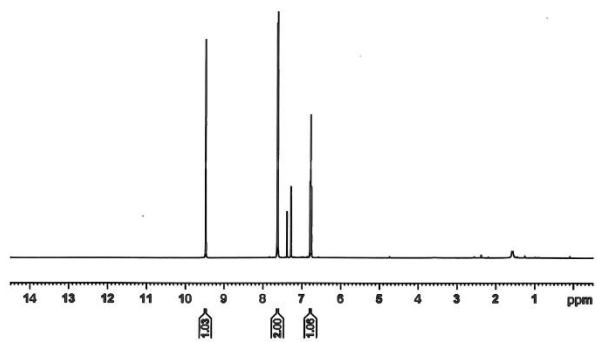
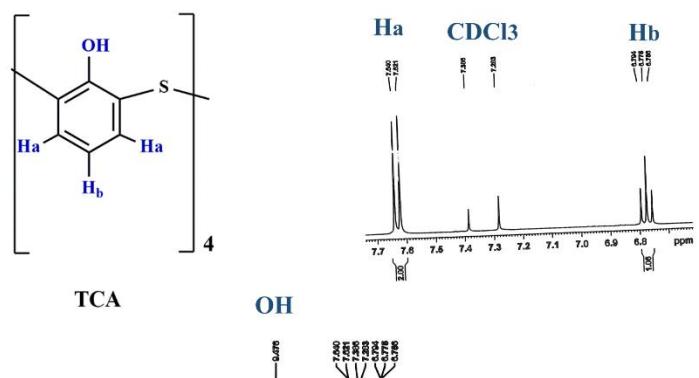


Fig S1.2 ^1H NMR spectrum of TCA in CDCl_3

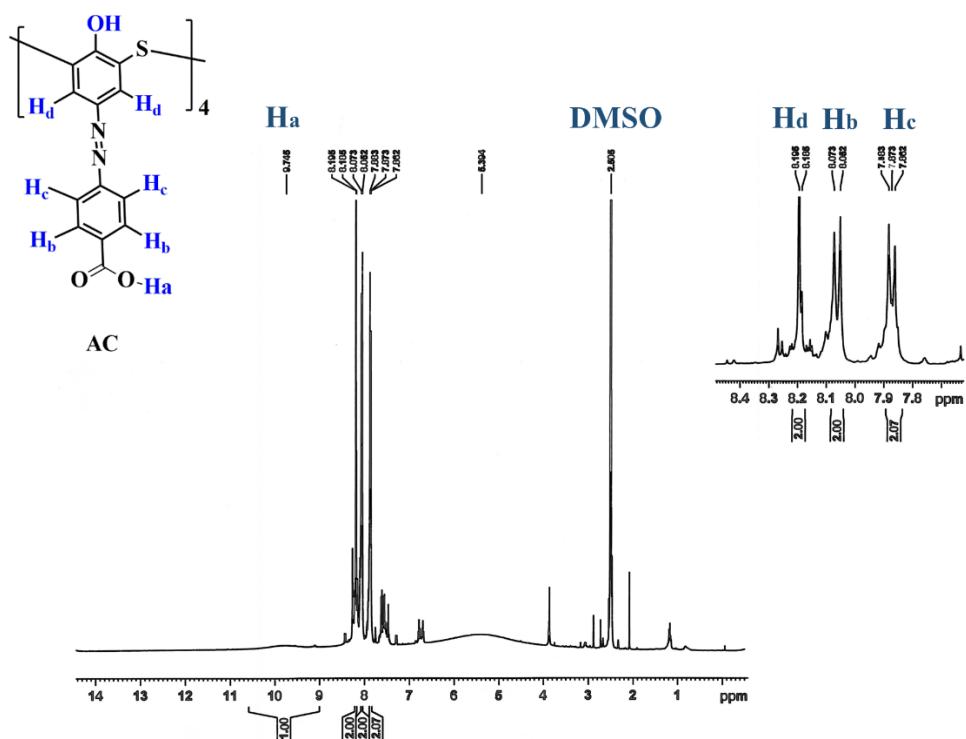


Fig S1.3 ^1H NMR spectrum of AC in DMSO-d_6

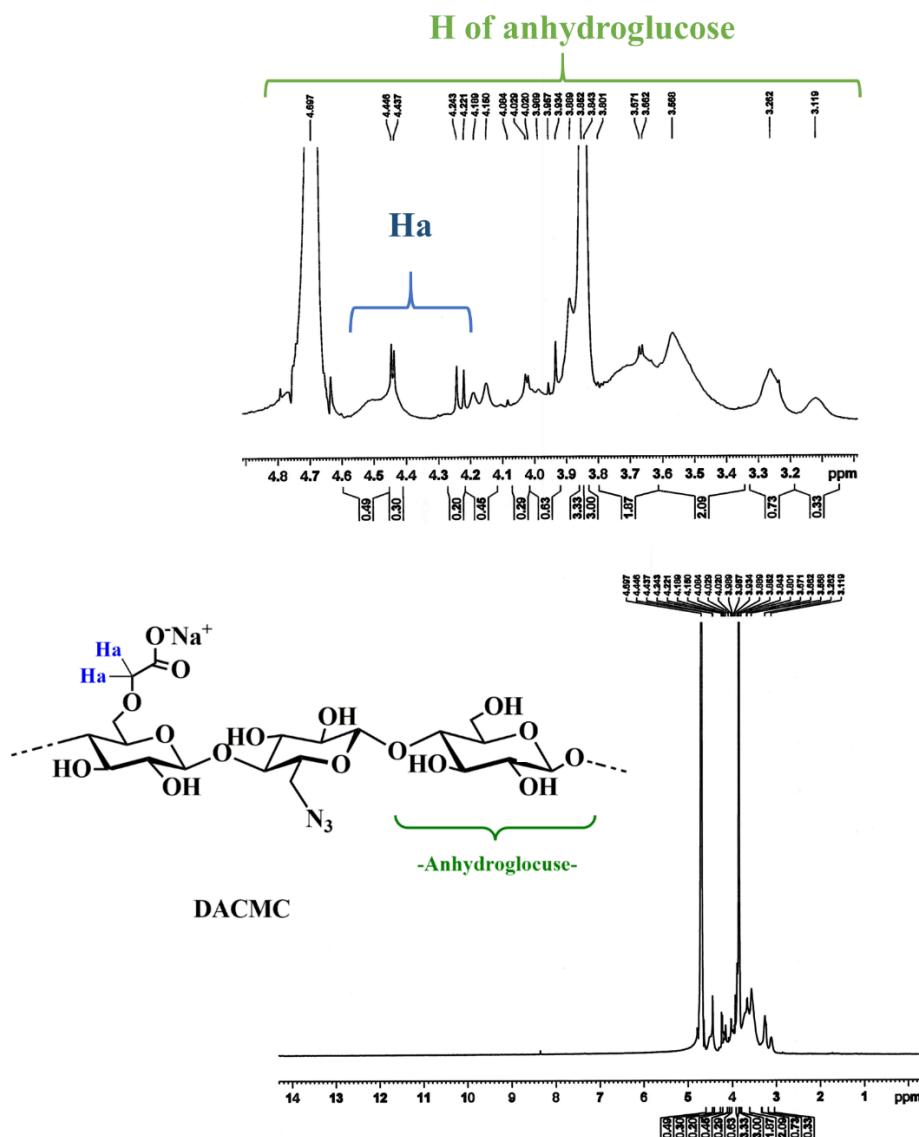
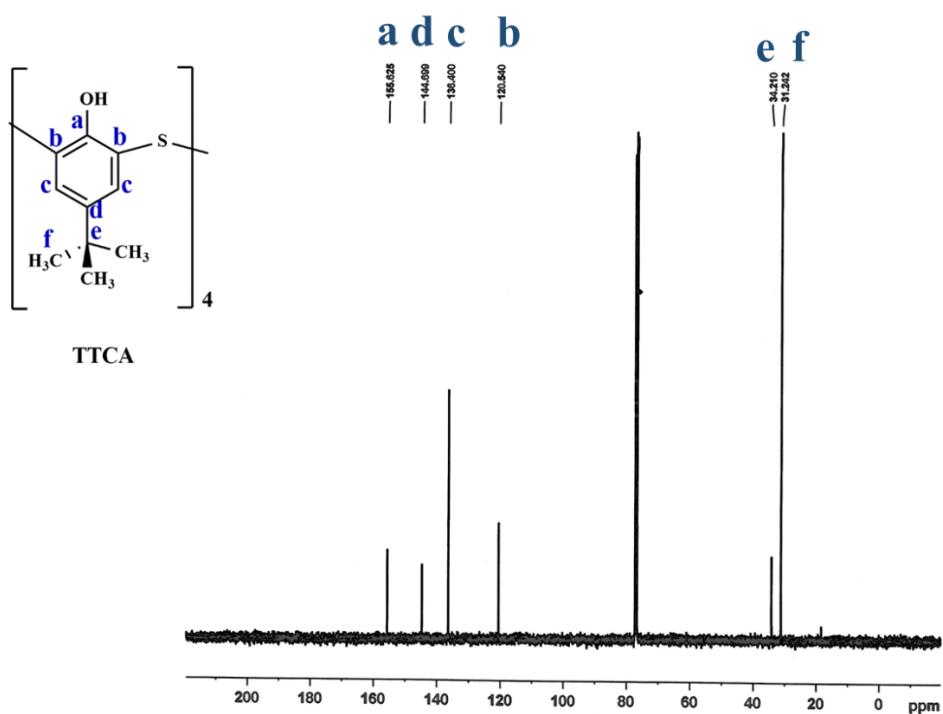
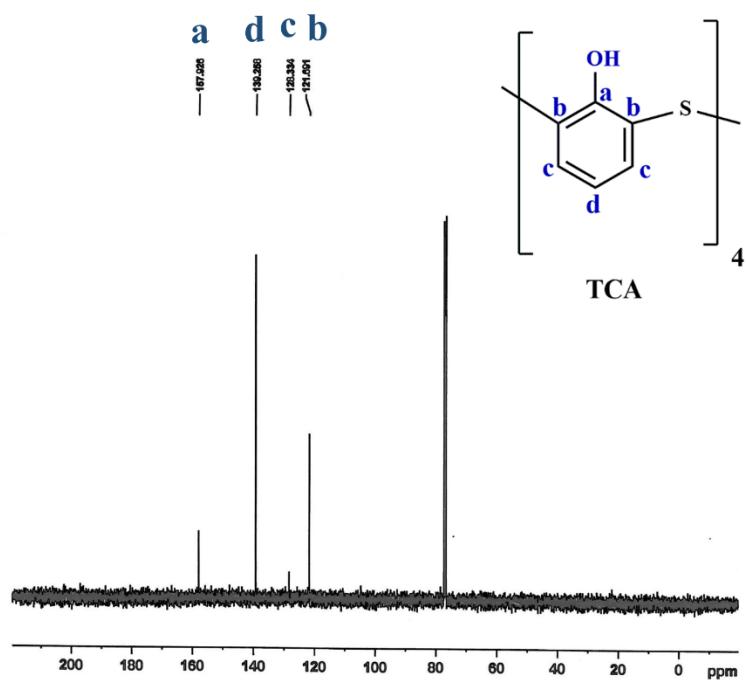


Fig S1.4 ^1H NMR spectrum of DACMC in D_2O

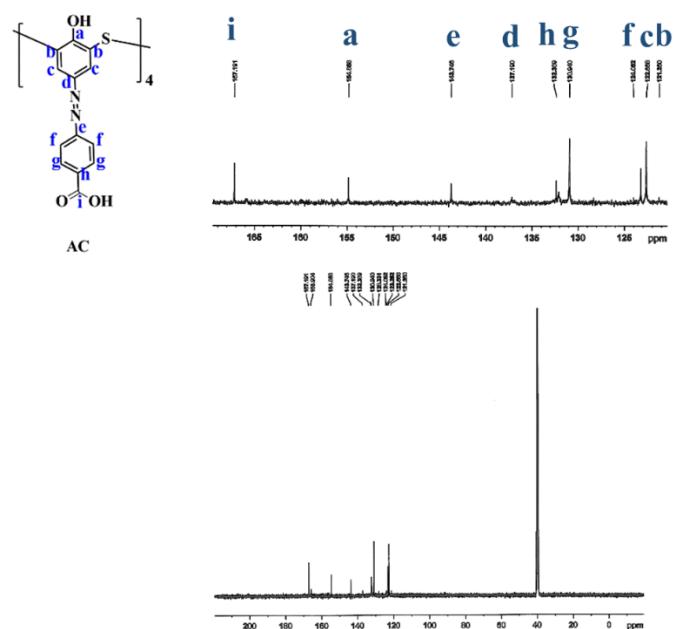
S2. ^{13}C NMR spectra



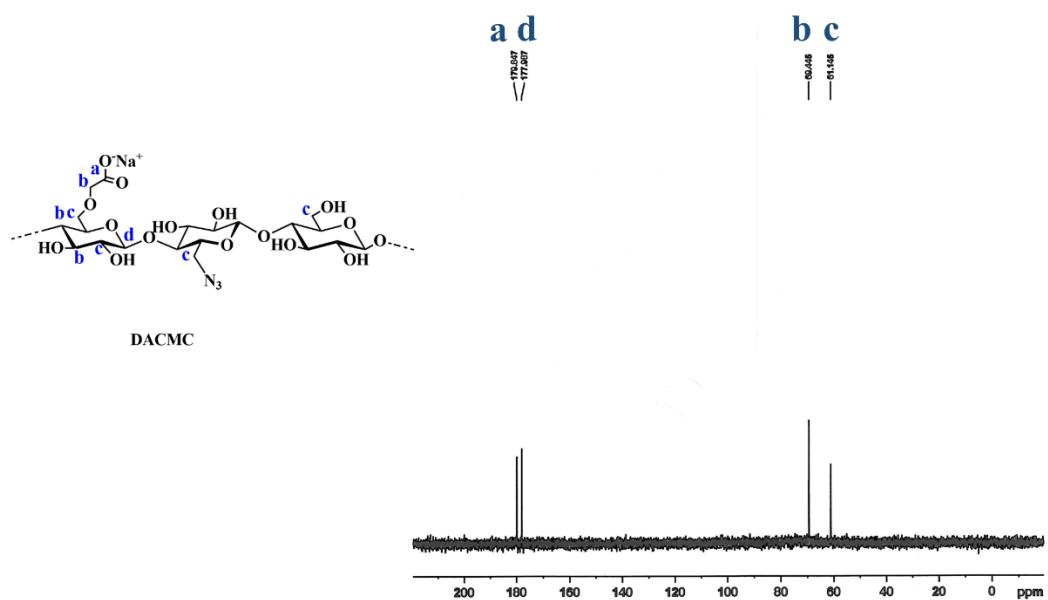
S2.1 ^{13}C NMR spectrum of TTCA in CDCl_3



S2.2 ^{13}C NMR spectrum of TCA in CDCl_3



S2.3 ^{13}C NMR spectrum of AC in DMSO-d₆



S2.4 ^{13}C NMR spectrum of DACMC in D_2O