Electronic Supplementary Material (ESI) for RSC Advances


**Supplementary data**

# Epoxy-based polymer bearing triphenylamine units: Highly selective fluorescent chemosensor for $Hg^{2+}$ ion

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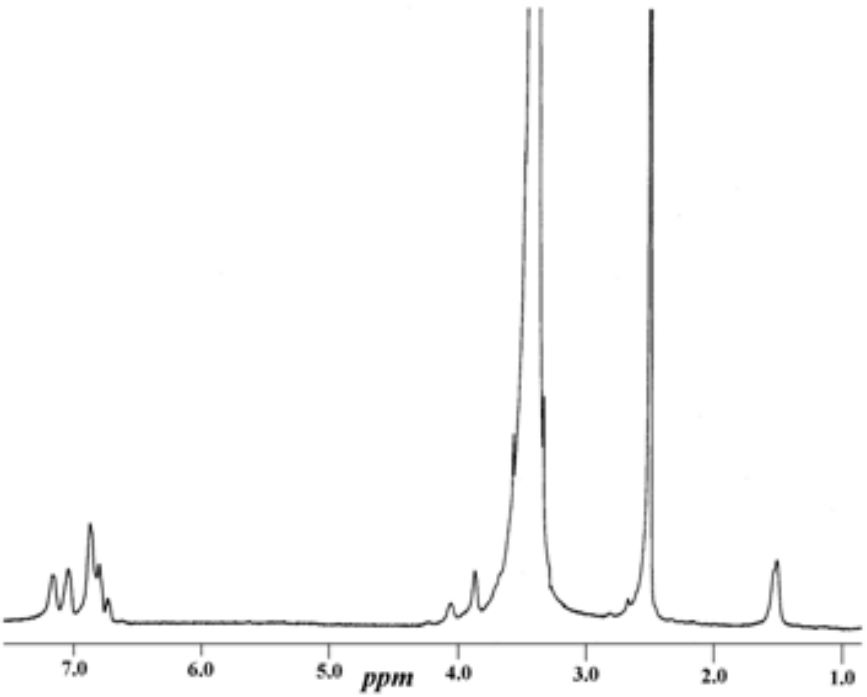


**Figure 1s**: $^{1}$H NMR spectrum of **1**

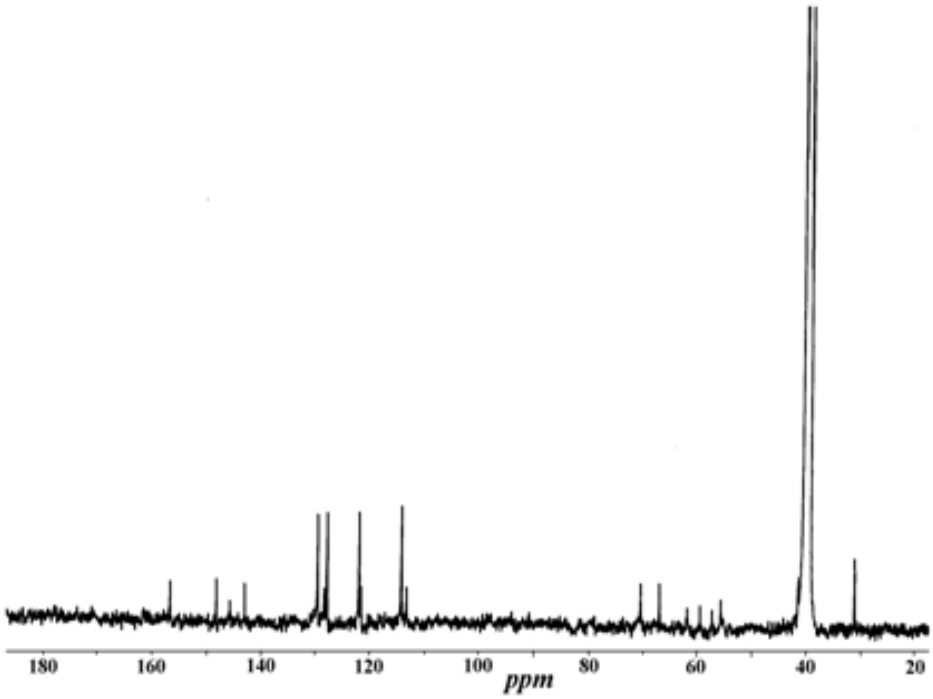


**Figure 2s**: $^{13}C$ NMR spectrum of **1**

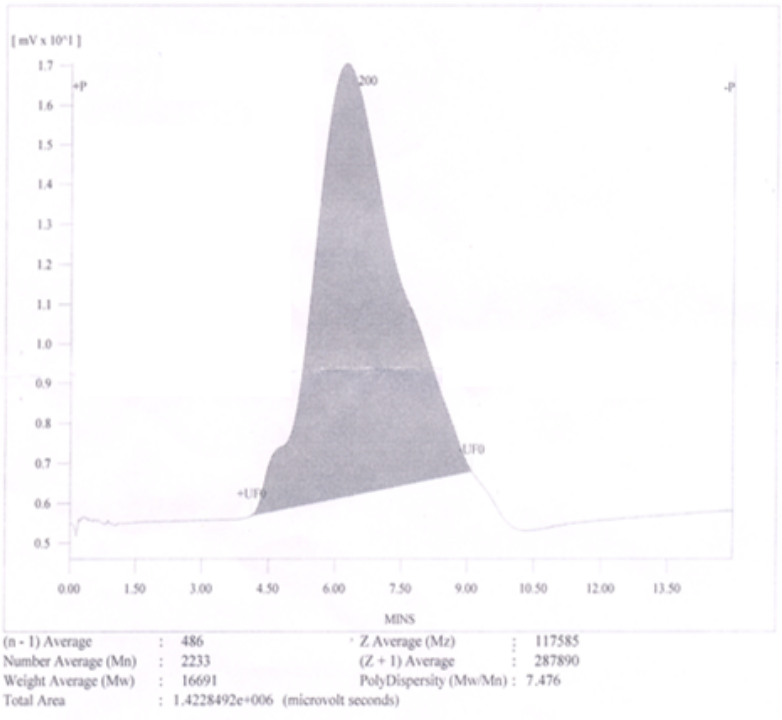


**Figure 3s**: GPC curve of **1**

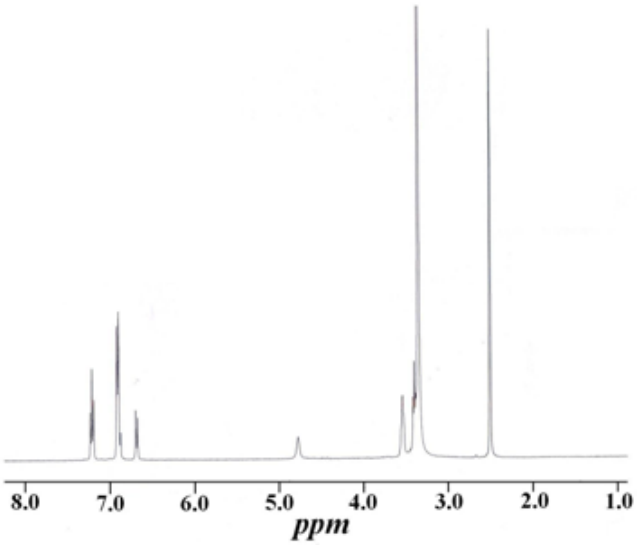


**Figure 4s**: $^{1}$H NMR spectrum of **2**

Table 1s: Thermal properties of **1**

| DSC [a] | TG/DTG[b] | | | | |
|---|---|---|---|---|---|
| $[T_g(^oC)]$ | $T_d^5(^oC)$ | Temp. range ($^oC$) | $T_{max}(^oC)$ | Weight loss % | $Y_c$ at 600$^o$C (wt%) |
| 110 | 236 | 320-440 | 365 | 82.3 | 07 |

[a]Samples were first heated from -50$^o$C to 200$^o$C at a heating rate of 10$^o$C/min under a nitrogen atmosphere, followed by cooling to -50$^o$C at a rate of 10$^o$C/min after stopping at 200$^o$C for 2 min, and finally heating to 200$^o$C at a rate of 10$^o$C/min. $T_g$ = Glass transition temperature.

[b]TGA analysis was performed at a heating rate of 10$^o$C/min under nitrogen flow (100ml/min); $T_d^5$= Temperature at which 5% weght loss occurred; $T_{max}$= maximum rate of weight loss; $Y_c$ = char yield.

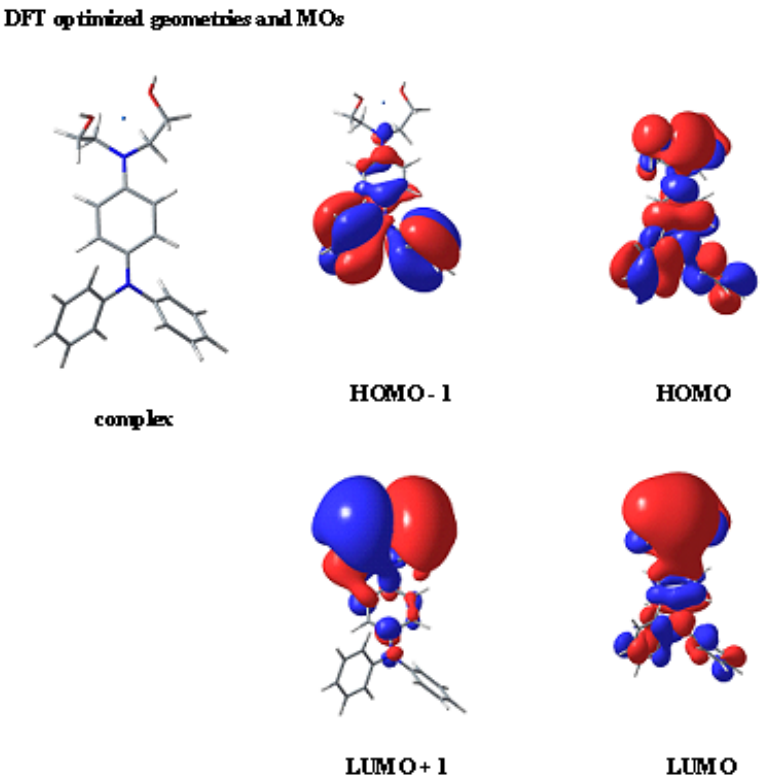


**Figure 5s:** DFT[1] optimized geometry of the mercury complex of **1** and the plots of HOMO and LUMOs (For DFT optimization of the mercury complex of model compound **2**, b3lyp functional and lanl2dz basis set was used).

## Reference

1. M. J. Frisch, G. W. Trucks, H. B. Schlegel, G. E. Scuseria, M. A. Robb, J. R. Cheeseman, J. A. Montgomery, Jr. T. Vreven, K. N. Kudin, J. C. Burant, J. M. Millam, S. S. Iyengar, J. Tomasi, V. Barone, B. Mennucci, M. Cossi, G. Scalmani, N. Rega, G. A. Petersson, H. Nakatsuji, M. Hada, M. Ehara, K. Toyota, R. Fukuda, J. Hasegawa, M. Ishida, T. Nakajima, Y. Honda, O. Kitao, H. Nakai, M. Klene, X. Li, J. E. Knox, H. P. Hratchian, J. B. Cross, C. Adamo, J. Jaramillo, R. Gomperts, R. E. Stratmann, O. Yazyev, A. J. Austin, R. Cammi, C. Pomelli, J. W. Ochterski, P. Y. Ayala, K. Morokuma, G. A. Voth, P. Salvador, J. J. Dannenberg, V. G. Zakrzewski, S. Dapprich, A. D. Daniels, M. C. Strain, O. Farkas, D. K. Malick, A. D. Rabuck, K. Raghavachari, J. B. Foresman, J. V. Ortiz, Q. Cui, A. G. Baboul, S. Clifford, J. Cioslowski, B. B. Stefanov, G. Liu, A. Liashenko, P. Piskorz, I. Komaromi, R. L. Martin, D. J. Fox, T. Keith, M. A. Al-Laham, C. Y. Peng, A. Nanayakkara, M. Challacombe, P. M. W. Gill, B. Johnson, W. Chen, M. W. Wong, C. Gonzalez and J. A. Pople, *Gaussian 09* (*Revision A.02*): Gaussian, Inc., Wallingford CT, 2004.