Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
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Supporting information

Specific Recognition of D-fructose Based on Tetra-Boronic Functionalized Viologen in Aqueous Solution

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Electronic Supplementary Information (ESI†)

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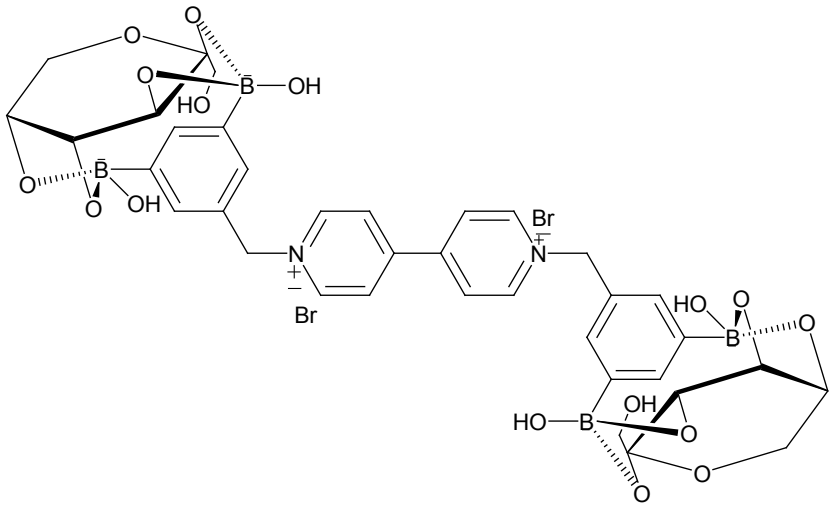

Scheme. *S1* The speculated binding way of T*o*BV and D-fructose.

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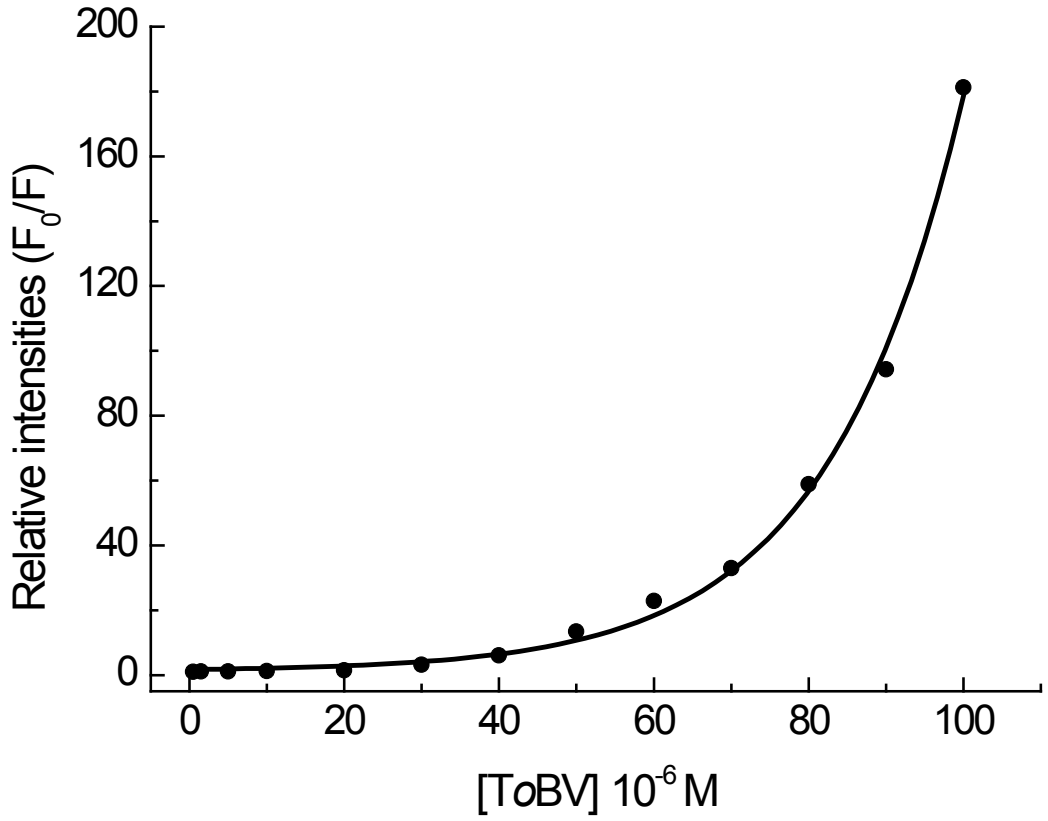

Fig. *S1* Stern-Volmer plot of HPTS (4.0×10^{-6} M) quenching by T*o*BV, measured in phosphate buffer solution pH 7.4.

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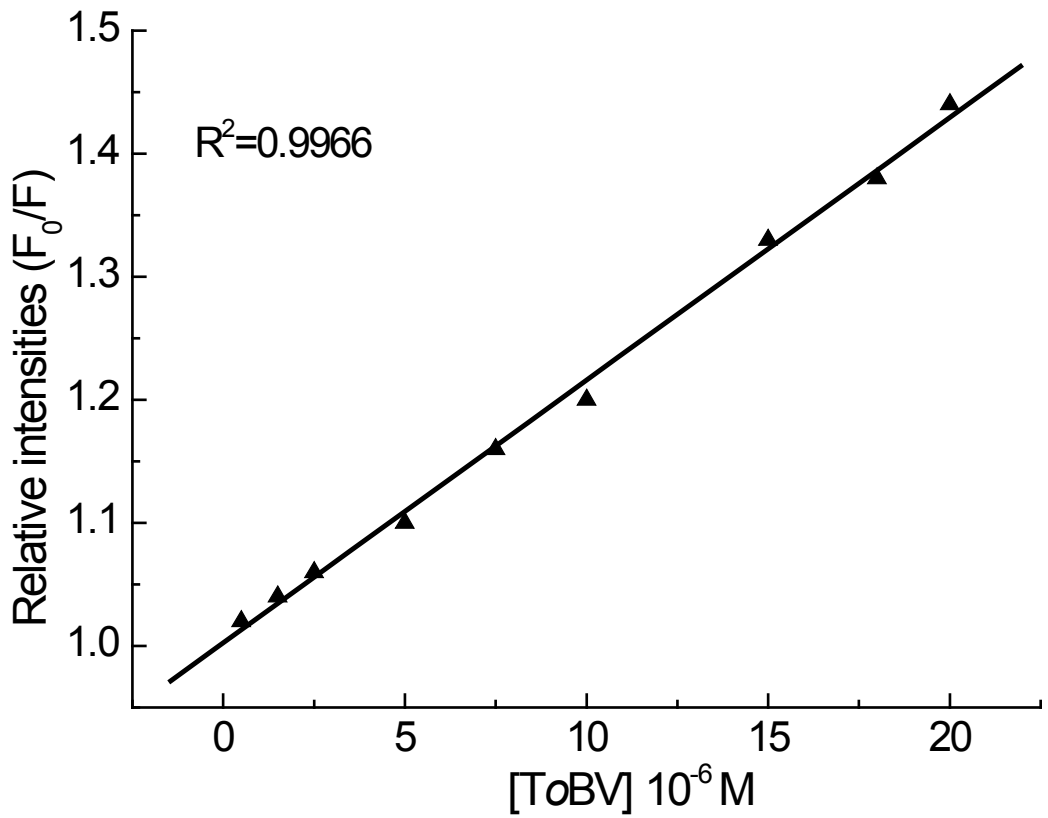

Fig. *S2* Stern-Volmer plot of HPTS (4.0×10^{-6} M) quenching by lower concentration of T*o*BV, measured in phosphate buffer solution pH 7.4.

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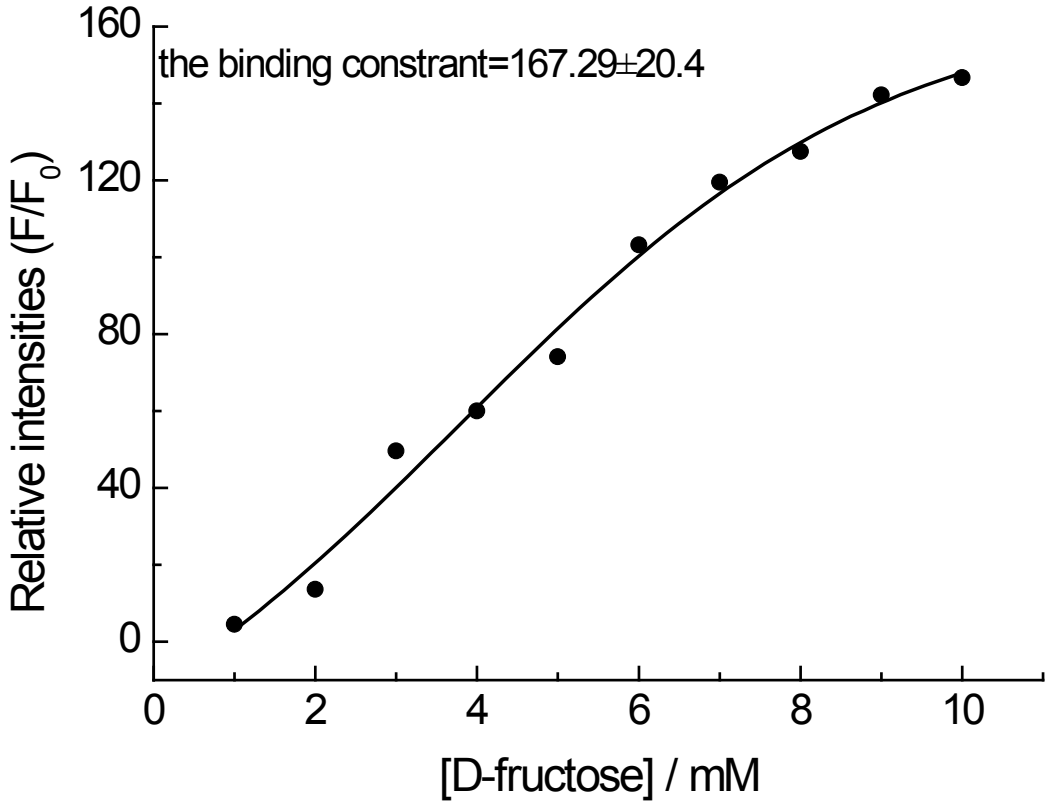

Fig. *S3* The superlinear relation response by introduction of quencher followed by D-fructose to HPTS solution (4.0×10^{-6} M) at pH 7.4. The T*o*BV/HPTS ratio for this data was 150/1 and final D-fructose concentration was 10 mM.

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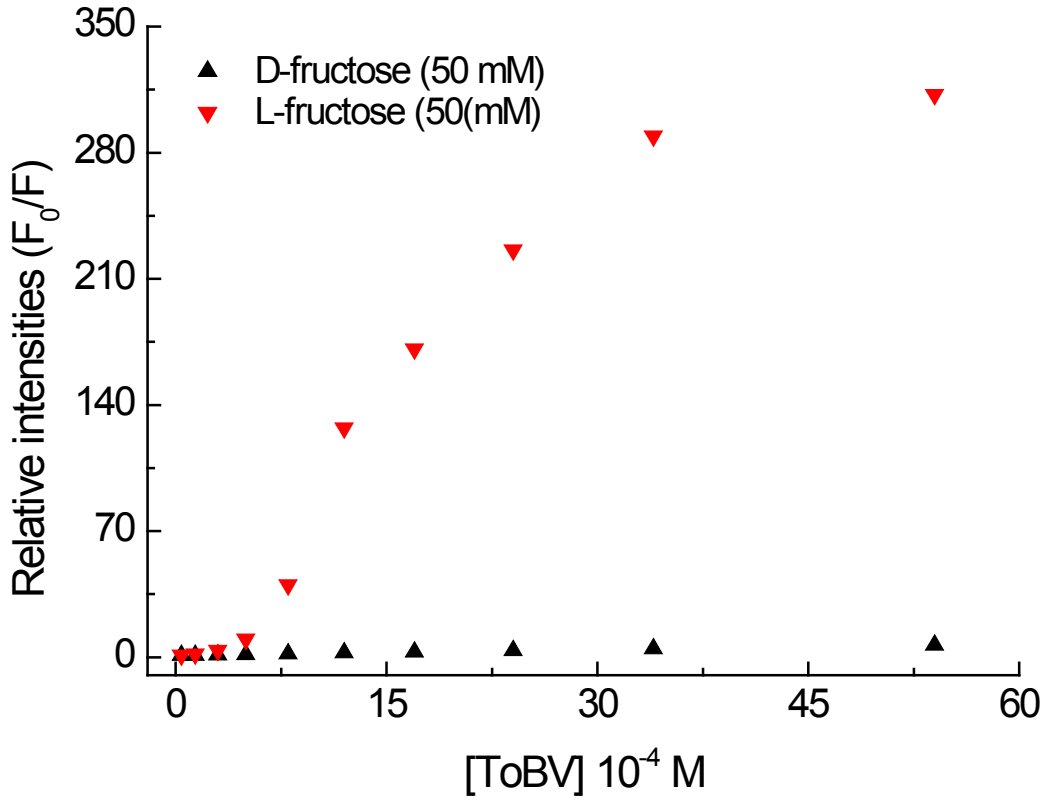

Fig. *S4* Stern-Volmer plots of HPTS (4.0×10^{-6} M) quenching by T*o*BV in the presence of D-fructose and L-fructose (50 mM) , respectively.

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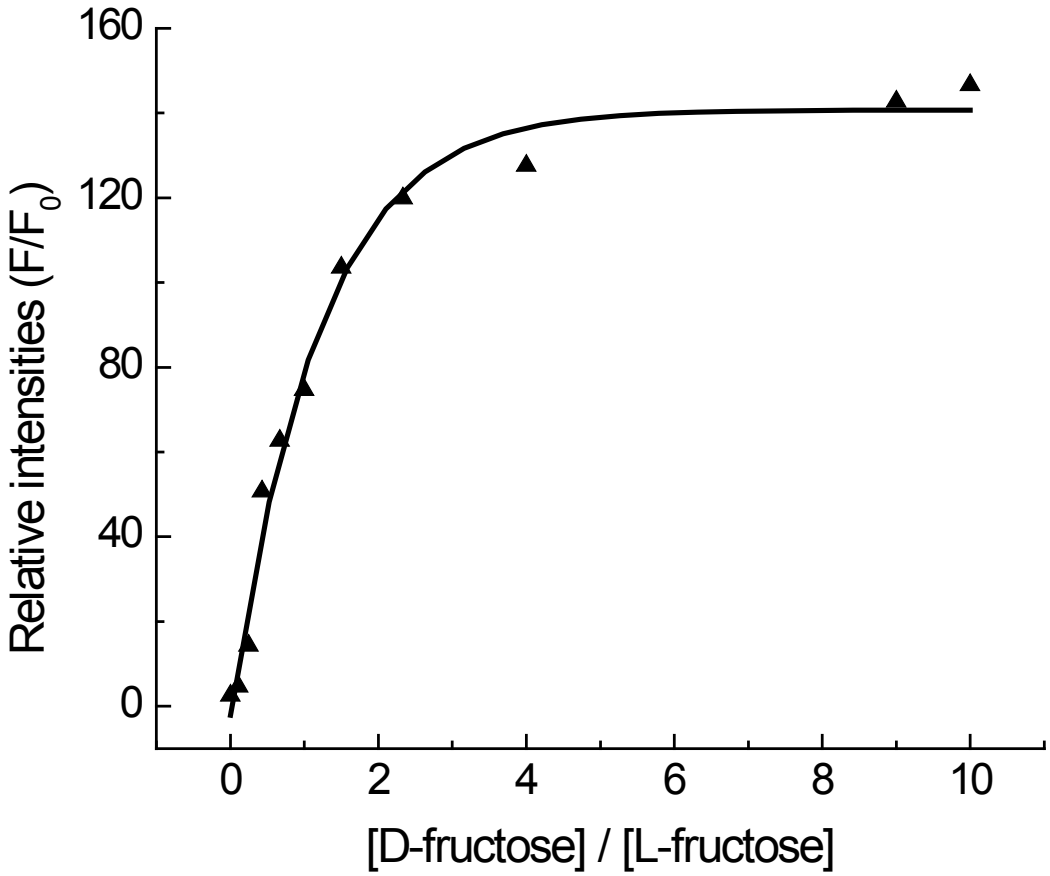

Fig. *S5* The ratios curve by introduction D/L-fructose to the sensing system with HPTS (4.0×10^{-6} M) and T*o*BV (6.0×10^{-4} M). The total concentration of D-fructose and L-fructose was 10 mM.

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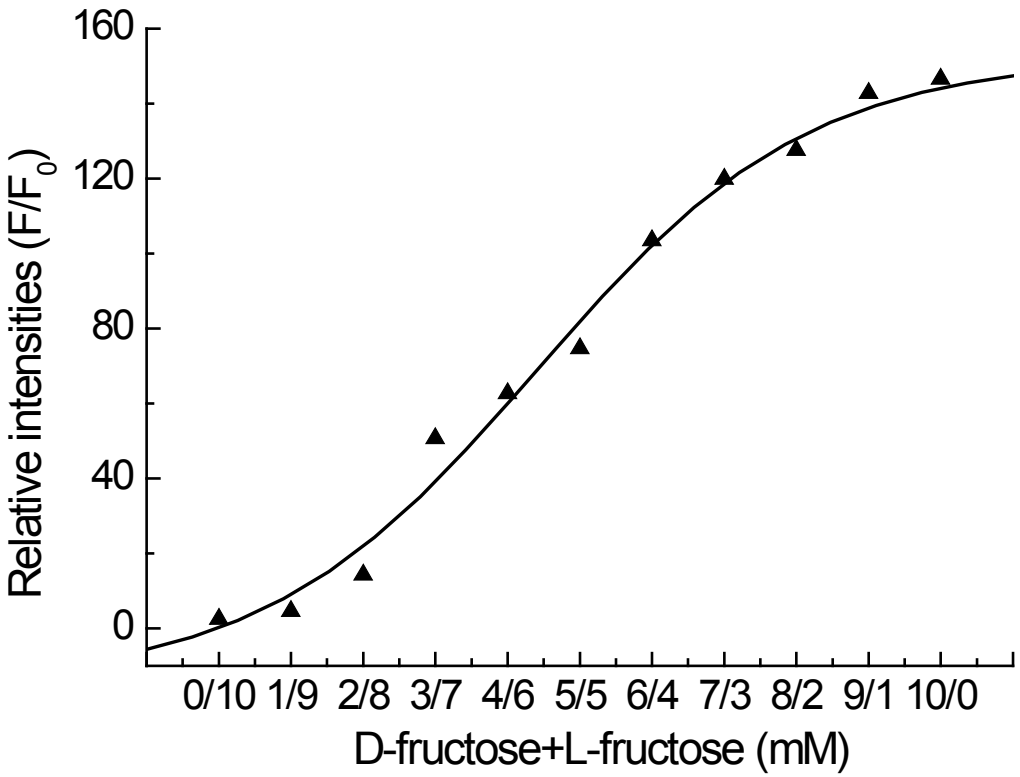

Fig. *S6* Characteristic fluorescence response by introduction D-fructose and L-fructose to the sensing system with HPTS (4.0×10^{-6} M) and T*o*BV (6.0×10^{-4} M). The total concentration of D-fructose and L-fructose was 10 mM.

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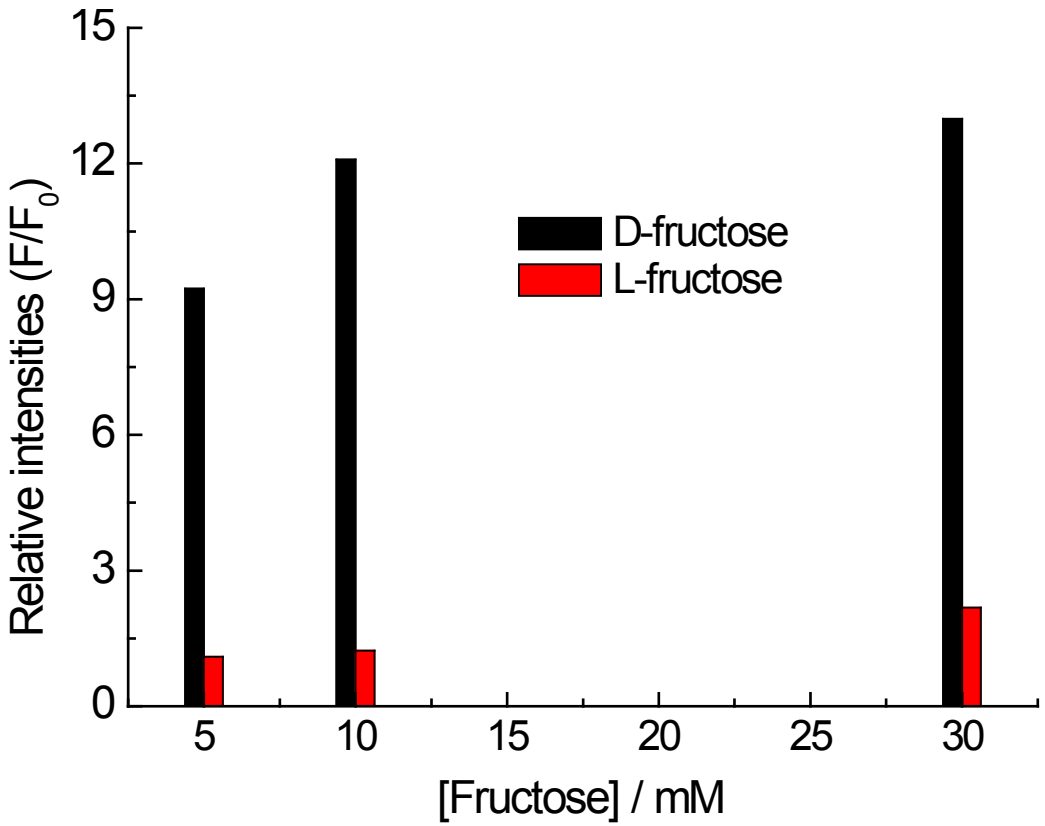

Fig. *S7* The binding characteristics of HPTS (4.0×10^{-6} M) and T*o*BV (2.0×10^{-4} M) with D-fructose and L-fructose in pH 7.4 phosphate buffer solutions.

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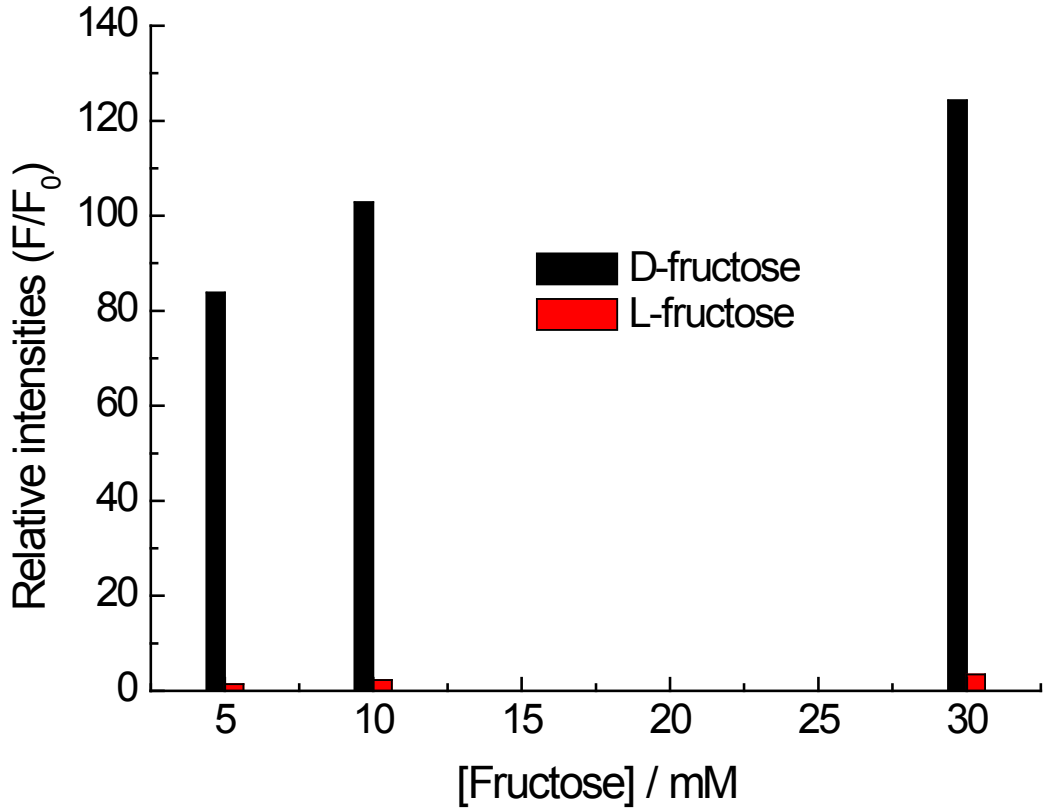

Fig. *S8* The binding characteristics of HPTS (4.0×10^{-6} M) and T*o*BV (4.0×10^{-4} M) with D-fructose and L-fructose in pH 7.4 phosphate buffer solutions.

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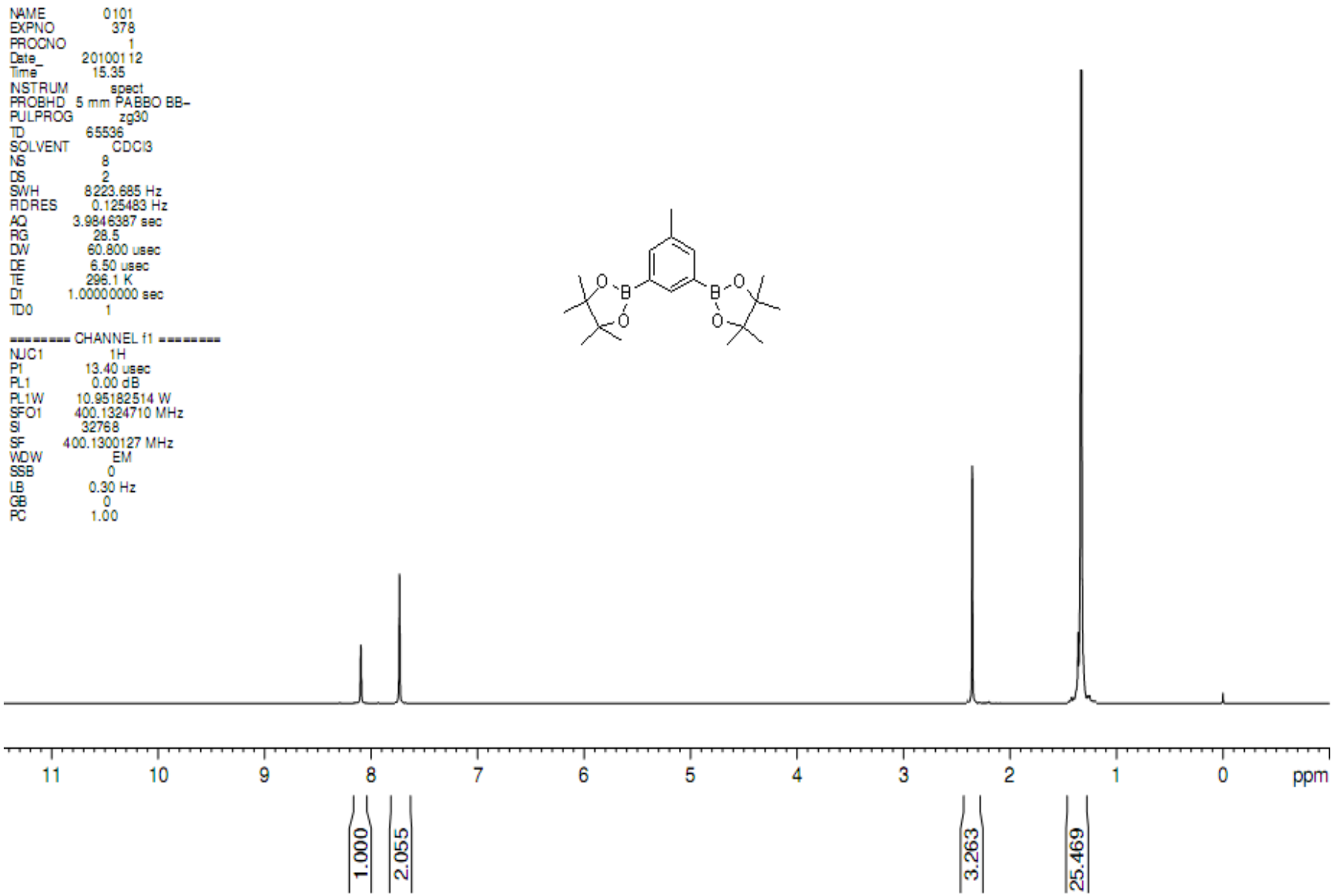

Fig. *S9* 400 MHz ^{1}H NMR of 3,5-bis-(4,4,5,5-tetramethyl-1,3,2-dioxaborolane)toluene in $CDCl_3$

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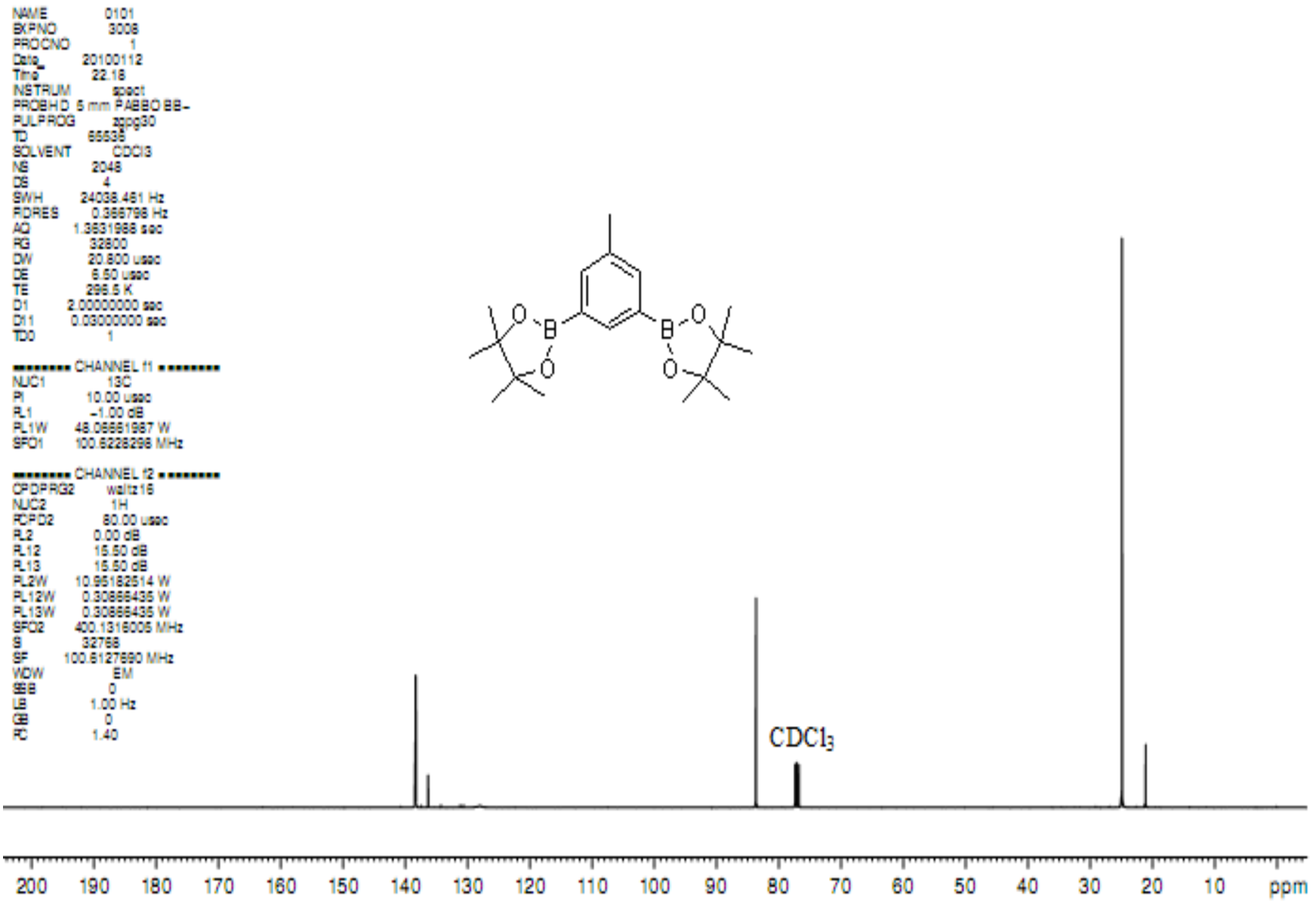

Fig. *S10* 100 MHz ^{13}C NMR of 3,5-bis-(4,4,5,5-tetramethyl-1,3,2-dioxaborolane)toluene in CD_3Cl_3.

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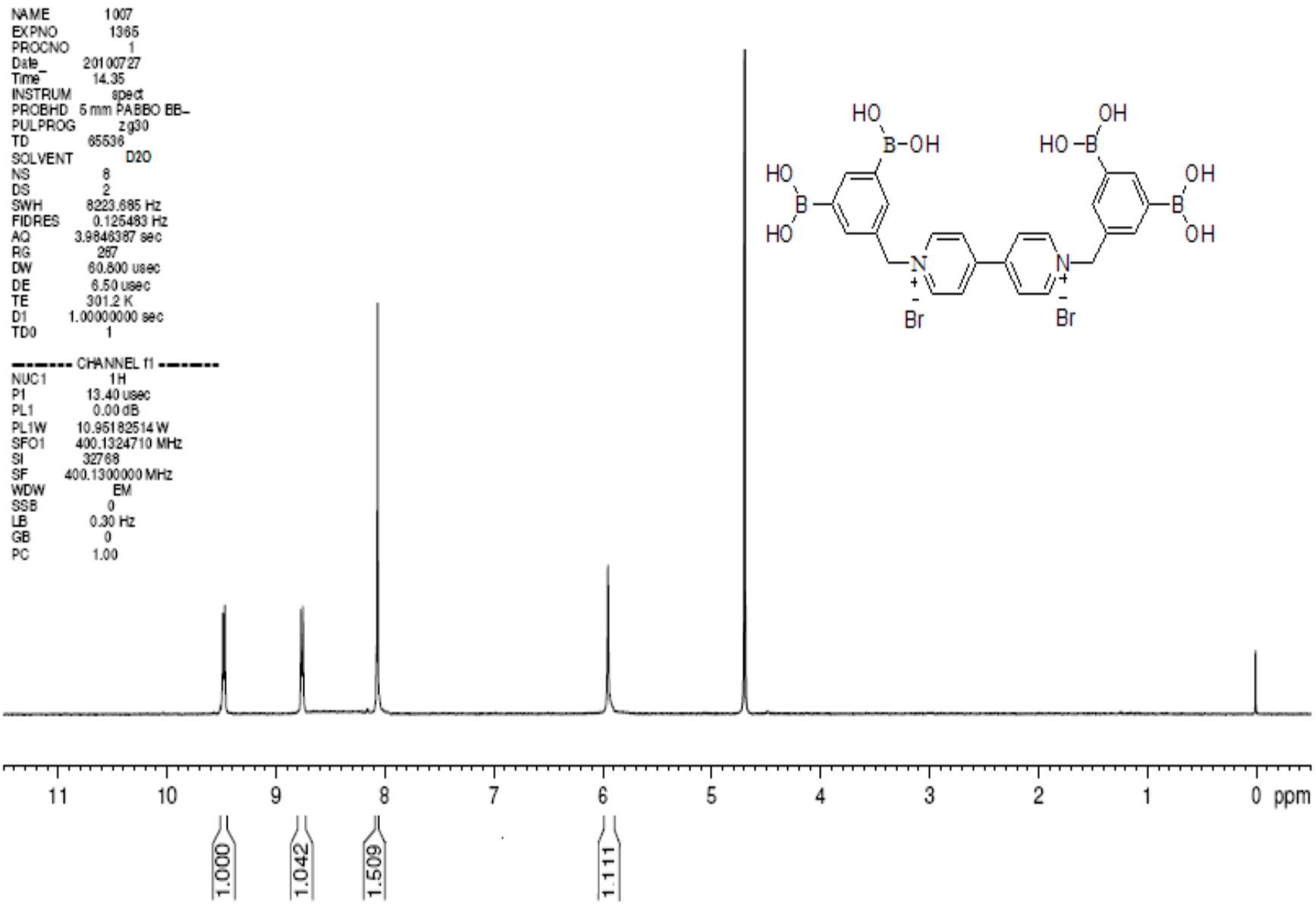

Fig. *S11* 400 MHz ^{1}H NMR of T*o*BV in D_2O

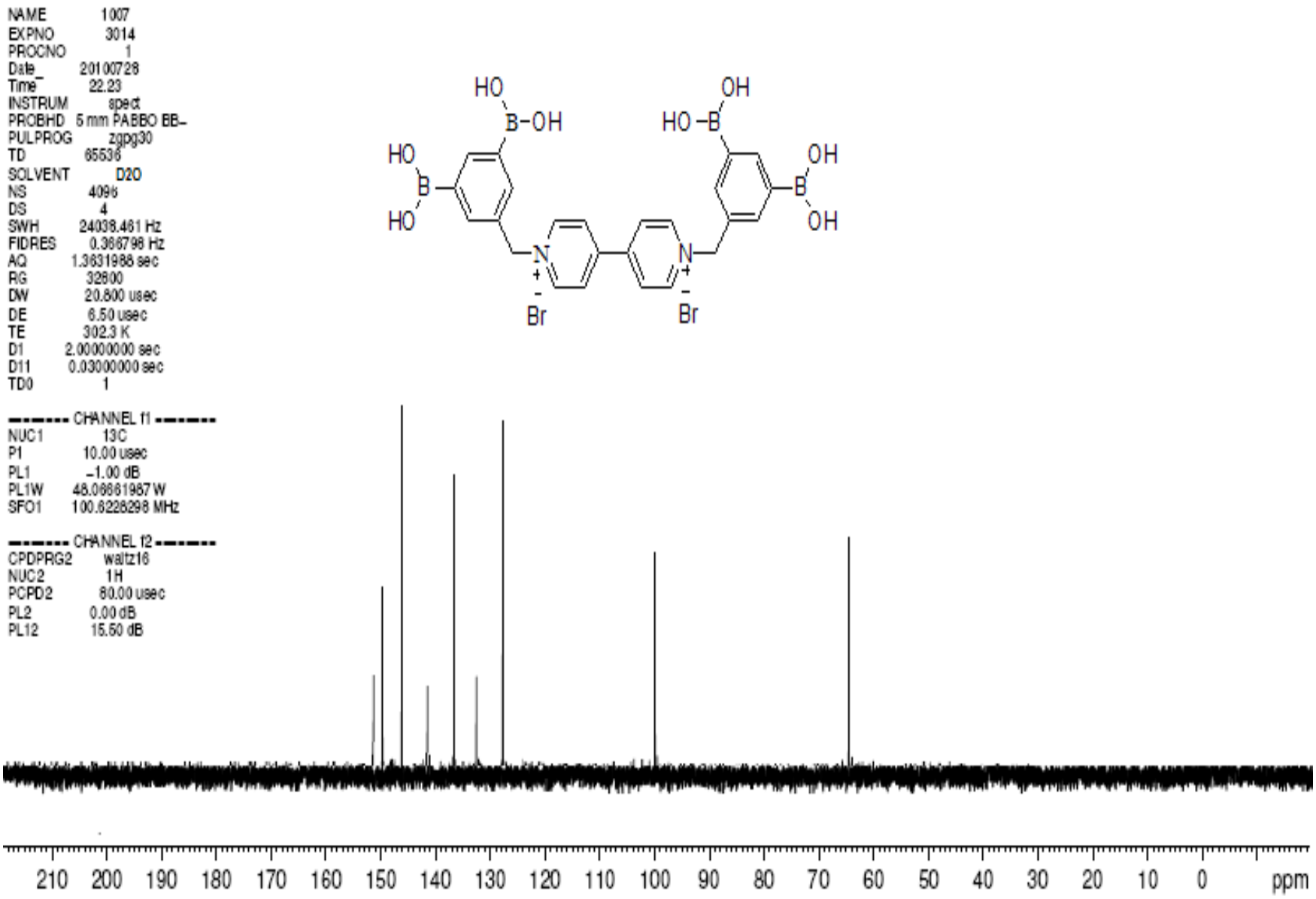

Fig. *S12* 100 MHz ^{13}C NMR of T*o*BV in D_2O