

Electronic Supplementary Information for

Selective Binding and Highly Sensitive Fluorescent Sensor of Palmatine and Dehydrocorydaline Alkaloids by Cucurbit[7]uril

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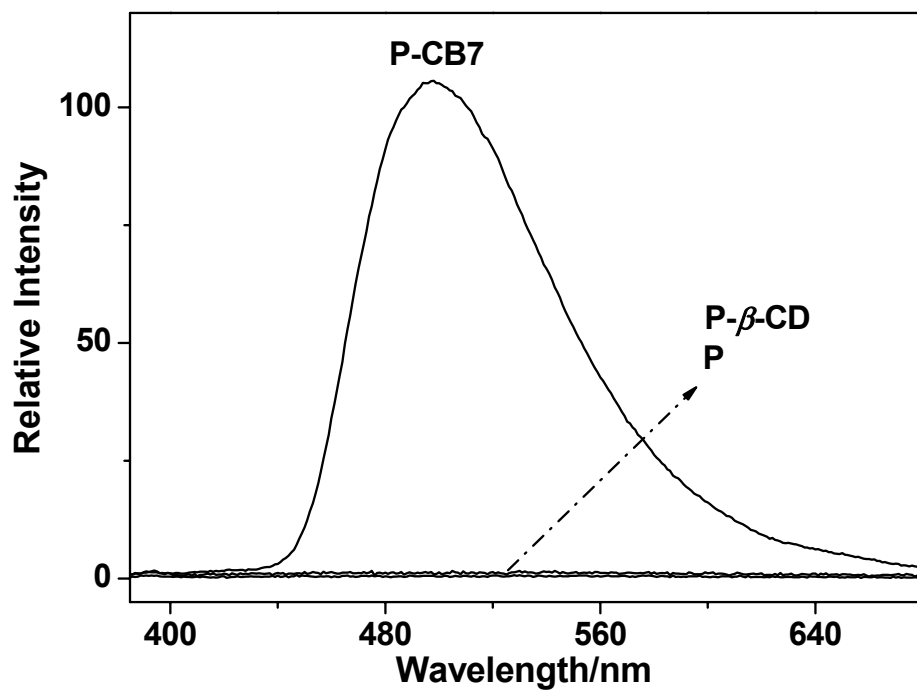


Fig. S1 Fluorescence spectra of P in the presence and absence of CB7 or β -CD host in aqueous phosphate buffer solution (pH 7.2) at 298.15 K. The concentration of P is $1.25 \times 10^{-5} \text{ mol dm}^{-3}$.

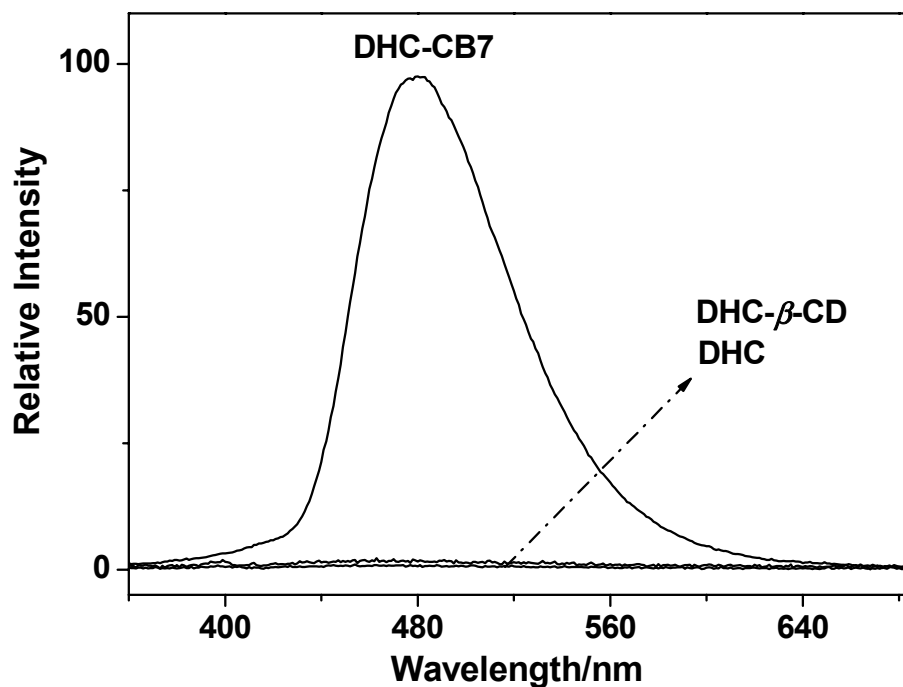


Fig. S2 Fluorescence spectra of DHC in the presence and absence of CB7 or β -CD host in aqueous phosphate buffer solution (pH 7.2) at 298.15 K. The concentration of DHC is $1.42 \times 10^{-5} \text{ mol dm}^{-3}$.



Fig. S3 Visible emission observed from samples of P and CB7, β -CD and glycoluril.

Left to right: P, P + CB7, P + β -CD and P + glycoluril.



Fig. S4 Visible emission observed from samples of DHC and CB7, β -CD and glycoluril. Left to right: DHC, DHC + CB7, DHC + β -CD and P + glycoluril.

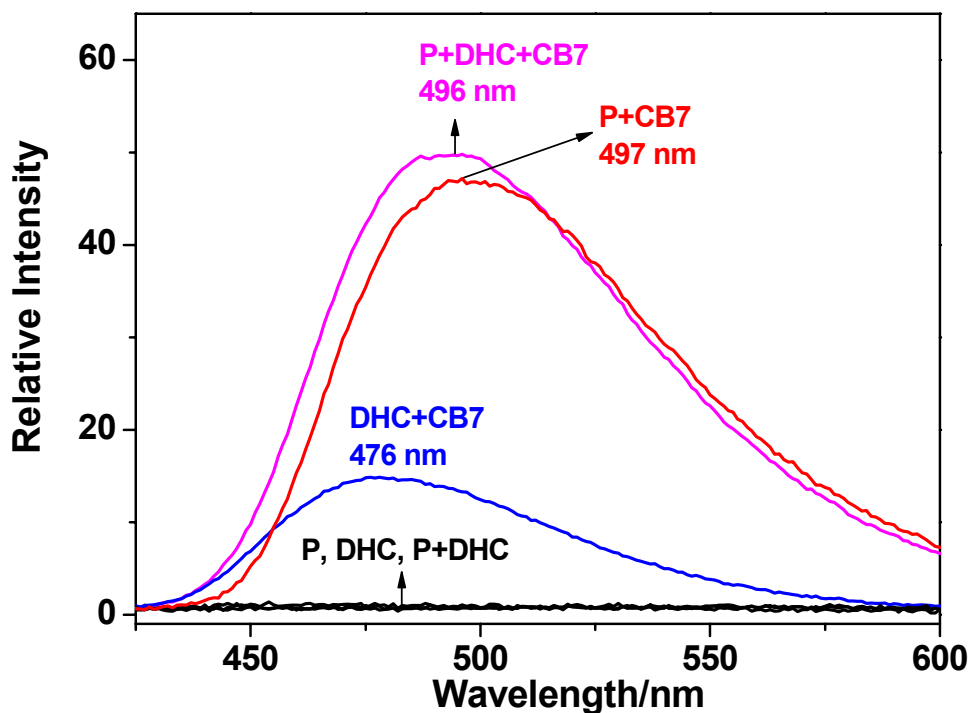


Fig. S5 Fluorescence spectra of P($1.86 \times 10^{-5} \text{ mol dm}^{-3}$), DHC(1.81 mol dm^{-3}) and the mixture of P and DHC($1.90 \times 10^{-5} \text{ mol dm}^{-3}$ for P and $1.85 \times 10^{-5} \text{ mol dm}^{-3}$ for DHC) in the absence and presence of about 1 mol equivalent of CB7 in aqueous phosphate buffer solution (pH 7.2) at 298.15 K ($\lambda_{\text{ex}} = 348 \text{ nm}$).

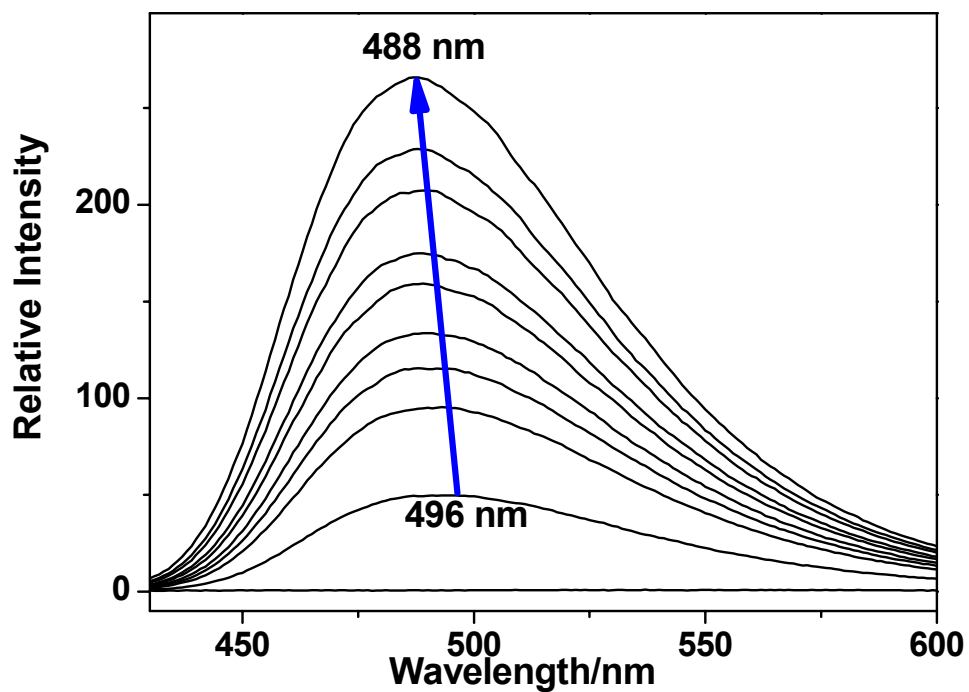


Fig. S6 Fluorescence spectral changes of the mixture of P and DHC (1.90×10^{-5} mol dm^{-3} for P and 1.85×10^{-5} mol dm^{-3} for DHC) with the addition of CB7 (0, 1eq, 2eq, 3eq, 4eq, 5eq, 6eq, 8eq, 11eq and 17eq) in aqueous phosphate buffer solution (pH 7.2) at 298.15 K ($\lambda_{\text{ex}} = 348$ nm).

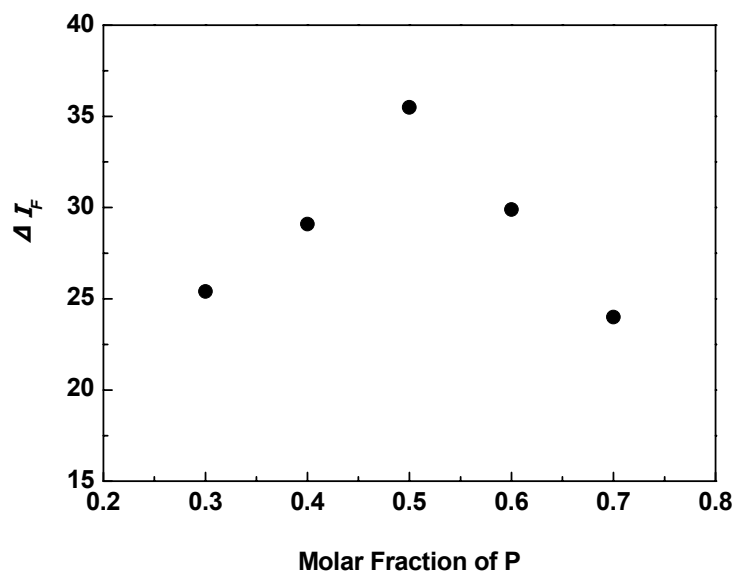


Fig. S7 Job's plot for inclusion complexation of P with CB7 ($[P]+[CB7]=2.65 \times 10^{-5} \text{ mol dm}^{-3}$) in phosphate buffer solution (pH 7.2)

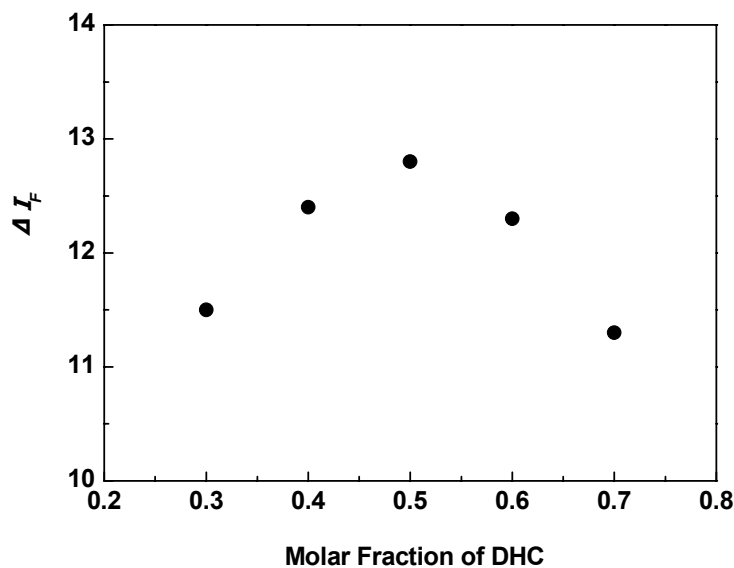


Fig. S8 Job's plot for inclusion complexation of DHC with CB7 ($[DHC]+[CB7]=2.92 \times 10^{-5} \text{ mol dm}^{-3}$) in phosphate buffer solution (pH 7.2)

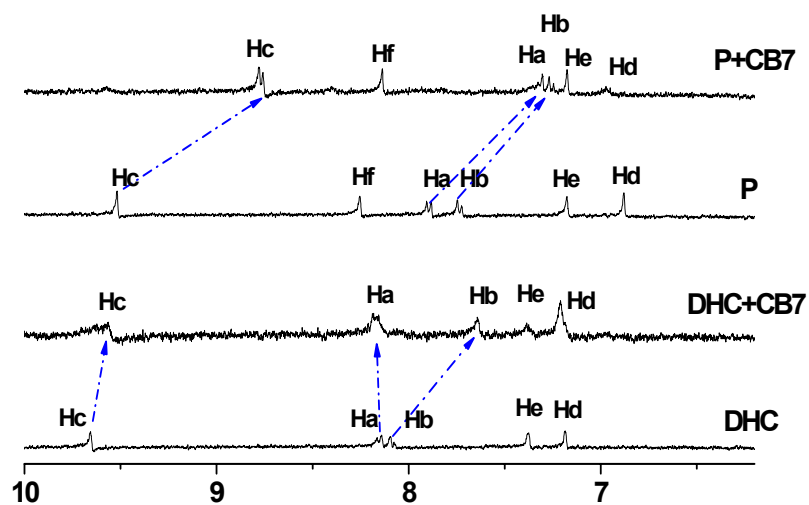


Fig. S9 ¹H NMR spectra (300 MHz, 0.2 M NaCl-D₂O, 298 K) of P + 1.1 equiv of CB7, P, DHC + 1.1 equiv of CB7 and DHC. The concentrations of P and DHC are 1.2 and 1.1×10^{-3} mol dm⁻³, respectively.

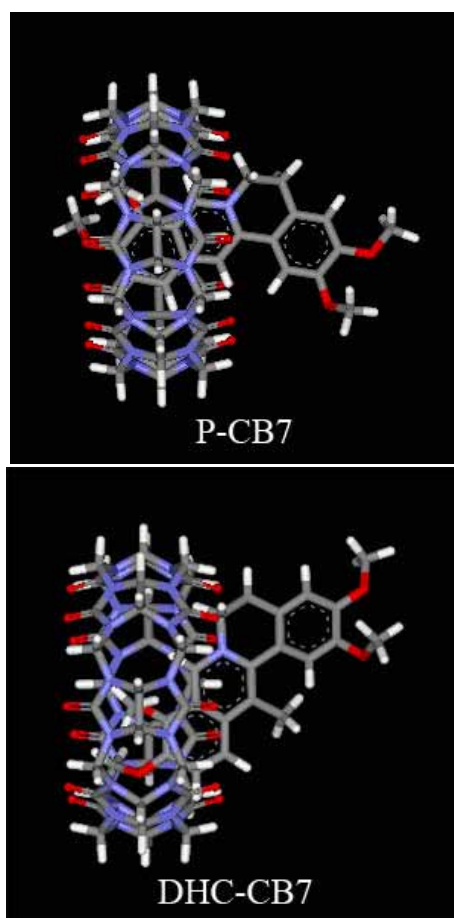


Fig. S10 Possible structures of P-CB7 and DHC-CB7 constructed according to MD simulation.