

Electronic Supplementary Information

A new photo-switchable “on-off” host-guest system

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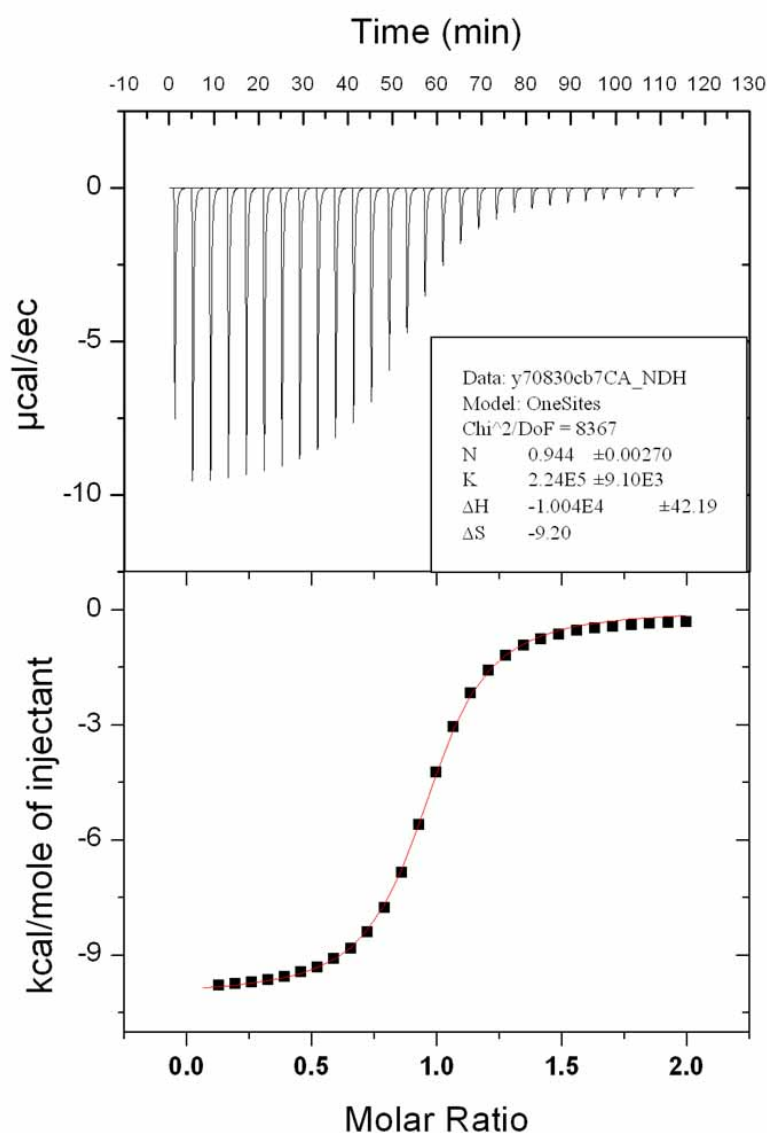


Fig. S1 ITC profile of CB[7]•(E)-cinnamamide at 298.15 K.

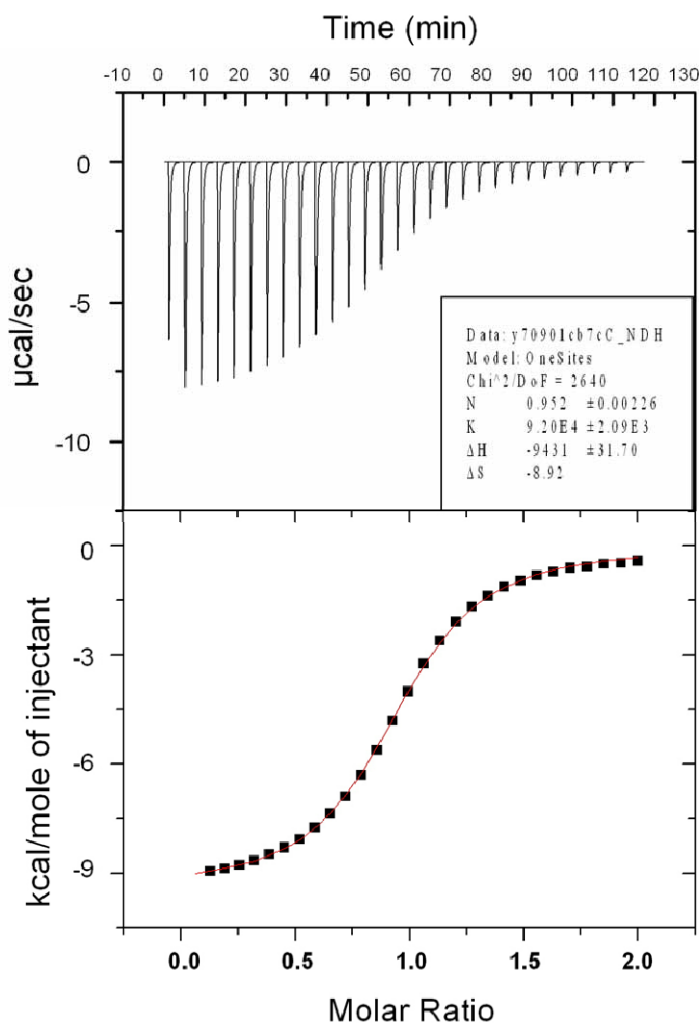


Fig. S2 Titration curve of CB[7] with the mixture of (*Z*)-cinnamamide and (*E*)-cinnamamide (*Z* isomer:*E* isomer = 6:1) at 298.15 K.

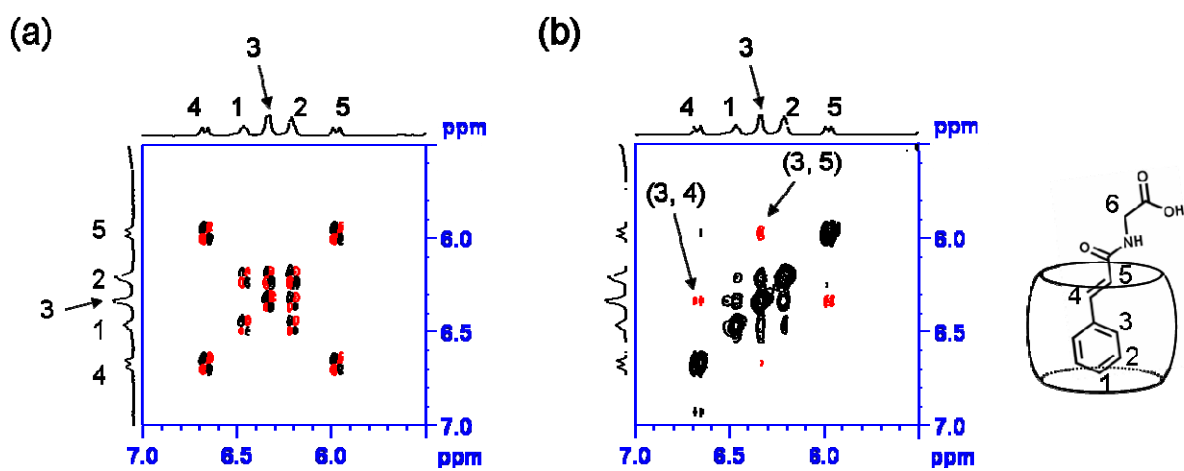


Fig. S3 Selected region of (a) COSY and (b) ROESY NMR spectra of CB[7]•*E*-1 complex in D₂O at 5 °C.

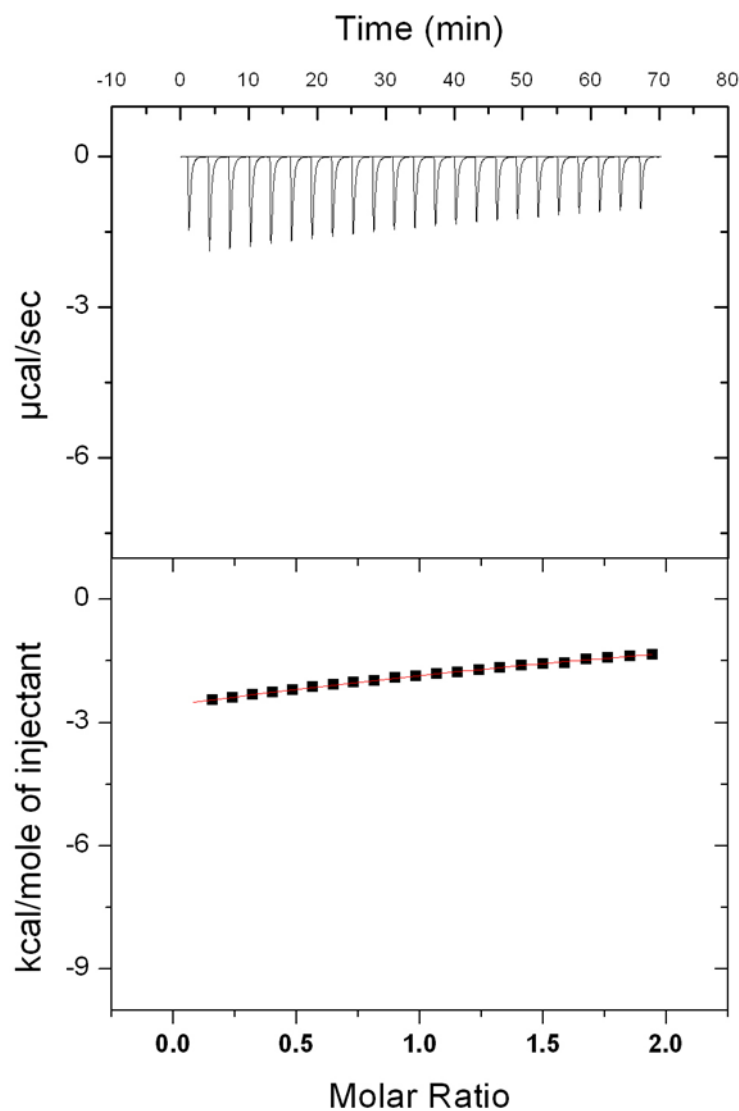


Fig. S4 Titration curve of CB[7] with Z-1: *E*-1 (6:1) at 298.15 K.

Table S1 The remaining percentage of *E*-1 and absorbance at 277 nm after irradiation of 300 nm-light with different exposure times (0, 50, 70, 120 and 180 sec). The absorbance of each solution was measured again after addition of 1 equiv. of CB[7].

Irradiation time (sec)	0	50	70	120	180
<i>E</i> -1 (%) ^a	100	74.6	41.9	25.9	16.0
Abs. at 277 nm	1.12	0.943	0.635	0.514	0.449
Abs. at 277 nm (after addition of 1 equiv CB[7])	1.09	0.886	0.654	0.510	0.444

^a The remaining percentage of *E*-1 of each solution was calculated by integration of ¹H NMR signals.

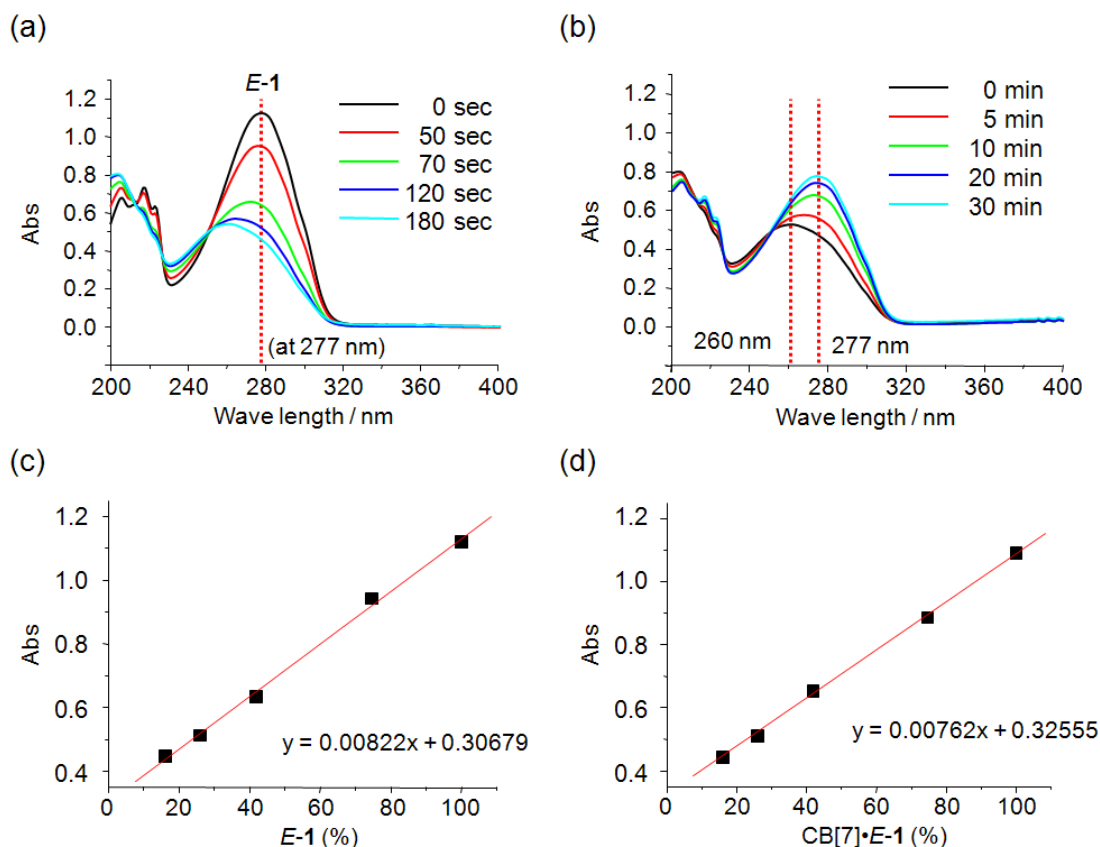


Fig. S5 Changes in the UV-Vis absorption spectra of (a) *E-1* upon 300 nm irradiation, (b) *Z-1:E-1 = 6:1* mixture upon 254 nm irradiation, with time. Calibration curve for (c) *E-1*, and (d) *CB[7]•E-1* plotted using the values in **Table S1**.

Table S2 The absorbance of solutions of *E-1* and *CB[7]•E-1* at 277 nm and remaining percentage of *E-1* and *CB[7]•E-1* upon alternating irradiation of 300 nm (3 min) and 254 nm (30 min).

Irradiation wavelength (nm)	-	300	254	300	254	300	254	300
Abs. at 277 nm	1.12	0.438	0.833	0.439	0.825	0.446	0.773	0.428
<i>E-1</i> (%)	100	16	64	16	63	17	57	15
Abs. at 277 nm (after addition of 1 equiv <i>CB[7]</i>)	1.09	0.455	0.920	0.463	0.889	0.447	0.897	0.463
<i>CB[7]•E-1</i> (%)	100	17	78	18	74	16	75	18