



Figure

$^1\text{H}$  NMR spectra (500MHz, 1:1  $\text{CDCl}_3\text{-CD}_3\text{CN}$ ) of a solution containing equimolar (23 mM) quantities of (*E*)-**3**, DB24C8 and benzil, illustrating the formation of rotaxane (*Z*)-**4**. The spectra portrayed were recorded after (a) 0 min, (b) 2 min, (c) 9.5 min and (d) 17.5 min UV irradiation, respectively. The concentrations of four species were determined by the integrations of signals, A-D.

◆: (*E*)-**3**, ■: (*Z*)-**3**, ▲: (*E*)-**4**, ×: (*Z*)-**4**