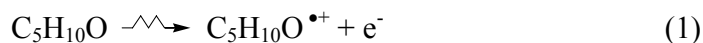


Intramolecular dimer radical anion of $[3_n]$ cyclophanes: transannular distance dependent stabilization energy

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Details of γ -ray radiolysis

In the present study, the radical anion of cyclophane was generated by γ -ray radiolysis. It is established that solute (S) in MTHF ($C_5H_{10}O$) glassy matrix at 77 K is reduced according to the following reactions,¹



When the electron generated in (1) was trapped by matrix, which shows absorption in the near-IR region, photoirradiation (> 700 nm) was carried out in order to enhance reaction (3).

In the present experiment, sample was prepared in a Suprasil cell with a 1 or 2 mm of optical path length. After the freeze-pump-thaw cycle, the degassed sample was plunged into liquid nitrogen to form transparent glassy matrix, to which γ -ray from ^{60}Co source of was irradiated at the Radiation Laboratory of ISIR, Osaka University. Absorption spectra were recorded using Shimadzu UV-3100PC.

Absorption spectra of [3₃](1,3,5)CP after γ -radiolysis.

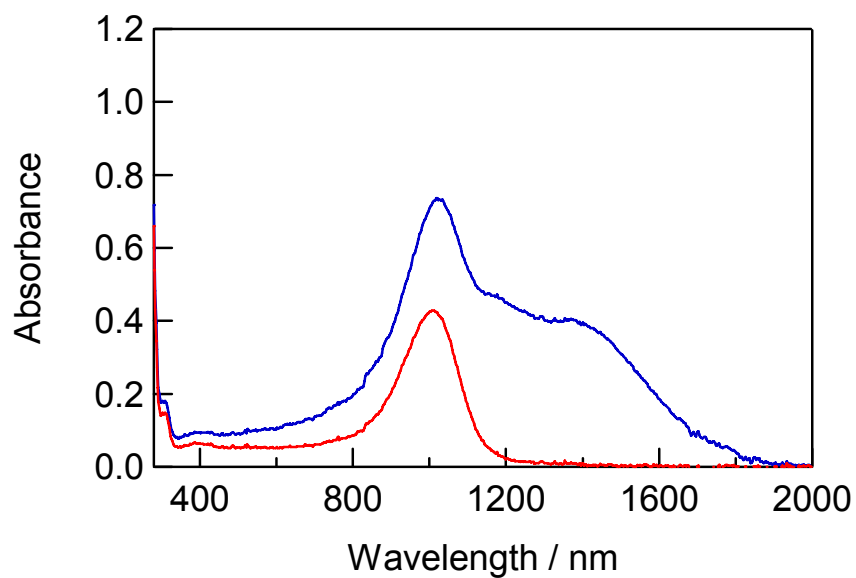


Figure S1. Absorption spectra of [3₃](1,3,5)CP in MTHF glassy matrix at 77 K after γ -radiolysis. Blue line is after γ -radiolysis. Red line is after photoirradiation.

Energy-minimized structures of radical anion of cyclophane.

	Top view	Side view
[3 ₂](1,3)CP		
[3 ₂](1,4)CP		

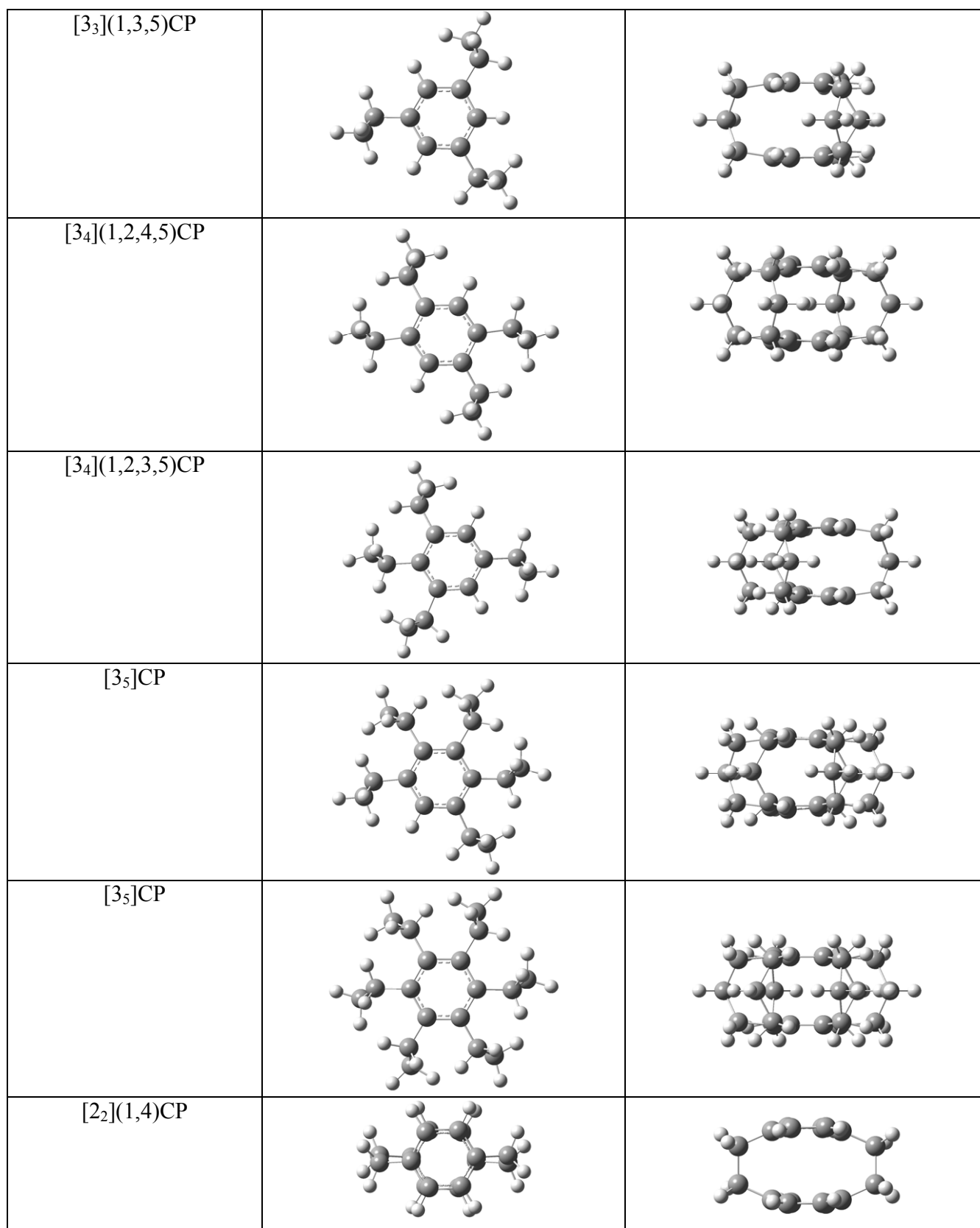


Figure S2. Energy-minimized structures of radical anion of cyclophanes calculated at UB3LYP/6-31+G(d) level. Top and side views.

Full citation for reference 22

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