00157

Poster 14

Time Resolved Electron Spin Resonance (TR-ESR) Study of Photolysis of Aromatic Compound Anion Radicals and Tetrakis-dimetylamino Ethylene (TDAE) Cation radical in Organic Solvent.

Dae Il Hong, Seung Min Kim, Young-Hyoun Yun, Ahn Sang Won, and Kuwata Keiji

Department of Chemistry and Physics, Keimyung University, 1000 Shindang-dong, Dalseo-ku, Taegu 704-701, Korea

Department of Chemistry, Osaka University, Toyonaka, Osaka 560, Japan

In this study we focus our attention on TDAE in which strong organic reductant having reducing power close to that of zinc, so the reductive reaction between aromatic compounds, Benzene (Bz), Naphthalene (Nap), and Anthracene (Ant), and TMAE that is strong reductant is identified by TR-ESR methods. The TR-ESR measurements were carried out with a JEOL ESR spectrometer without field modulation. we detected not only TDAE cation radical but also Bz, Nap, and Ant anion radicals after photolysis of such kinds of aromatic compound in TDAE (1mL) mixed of Isopropyl alcohol (50mL) at room temperature by TR-ESR spectrometer with argon gas bubbling. The single ESR line was observed from Bz, Nap, and Ant anion radicals. The 225 hyperfine structure lines were detected from TDEA cation radical. Life time of the two radicals are clearly different because the Bz, Nap, and Ant anion radicals could not be detected by cw-ESR. Either TR-ESR or CW-ESR absorption of TDAE cation radical could be always observed in Isopropyl alcohol in spite of excepting laser photolysis.