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# OXYGEN REDUCTION WITH SCHIFF BASE MN(II), CU(II) COMPLEXES INCORPORATING AZOBENZENE AS MEDIATORS OF LACCASE IN CATHODE OF BIOFUEL CELLS

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Laccase is mainly used as an oxygen reducing enzyme of cathode of biofuel cells. One problem is rate limiting of electron transfer between electrodes and laccase. To enhance transfer of electron, we have developed some mediators of metal complexes having redox anthraquinone ligands instead of substrates of hydrophobic pocket of laccase. In contrast, azobenzene is well known moiety to exhibit Weigert effect (molecular alignment induced by polarized UV light) as well as tuning of redox potentials by *cis-trans* photoisomerization. Recently, we have successfully improved efficiency of electron transfer by controlling molecular orientation of mediators. Herein, we present recent development of a series of study on mononuclear, binuclear, and tetranuclear Schiff base Cu(II) or Mn(II/III) complexes incorporating azobenzene moiety in ligands.

Evaluation of docking of mediators, multistep electron transfers of multinuclear complexes, contribution of molecular orientation as well as tuning of redox potentials will be discussed.

## Biography

Takashiro Akitsu has completed his PhD at the age of 28 years from Department of Chemistry, Osaka University and postdoctoral studies from Institute for Protein Research, Osaka University. He is a professor of Department of Chemistry, Faculty of Science, Tokyo University of Science, now. He has published more than 140 papers in reputed journals and has been serving as an editorial board member.

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