

**Indian Journal of Chemistry**  
**Sect. A: Inorganic, Bio-inorganic, Physical, Theoretical & Analytical**

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 CODEN: ICACEC; ISSN: 0376-4710 (Print), 0975-0975 (Online)

VOLUME 57A

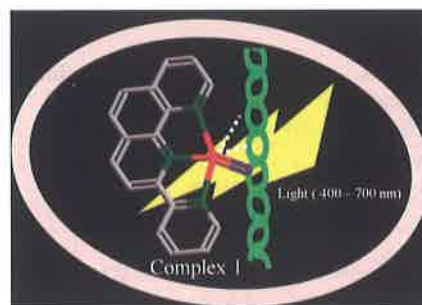
NUMBER 03

MARCH 2018

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**409 Oxovanadium(IV) complexes of polypyridyl bases as photocytotoxic and DNA crosslinking agents**

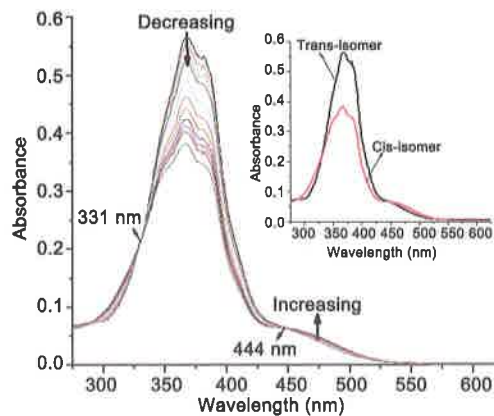
Dichlorooxovanadium(IV) complexes of *N,N,N*-donor polypyridyl bases with a *trans*-{VCl<sub>2</sub>} moiety show DNA crosslinking property. The complex with a dipyrindophenazine moiety as a photosensitizer displays photocytotoxicity in cancer cells under visible light (400-700 nm) by hydroxyl radical-mediated apoptosis with low dark toxicity and significantly less activity in normal cells.



Arun Kumar, Akanksha Dixit, Samya Banerjee,  
 Sanjoy Mukherjee, Somarupa Sahoo,  
 Anjali A Karande\* & Akhil R Chakravarty\*

**418 Arylazoimidazole complexes of lead(II)-halide and their photochromism**

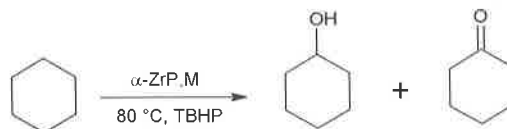
The arylazoimidazoles complexes, [Pb(Raai-C<sub>n</sub>H<sub>2n+1</sub>)X<sub>2</sub>] in DMF solution exhibit E-to-Z isomerisation about the -N=N- group of the coordinated Raai-C<sub>n</sub>H<sub>2n+1</sub> upon irradiation with UV light. The rate and quantum yields of the photoisomerisation of the complexes follows the sequence: [Pb(Raai-C<sub>n</sub>H<sub>2n+1</sub>)Cl<sub>2</sub>] < [Pb(Raai-C<sub>n</sub>H<sub>2n+1</sub>)Br<sub>2</sub>] < [Pb(Raai-C<sub>n</sub>H<sub>2n+1</sub>)I<sub>2</sub>] < Raai-C<sub>n</sub>H<sub>2n+1</sub>. The activation energy of reverse isomerisation (Z-to-E) of [Pb(Raai-C<sub>n</sub>H<sub>2n+1</sub>)X<sub>2</sub>] is lower than that of the free ligand, while the entropy of activation is a large negative in the complexes.



Debashis Mallick, Bharati Chowdhury,  
 Chandana Sen, Kamal Krishna Sarkar,  
 Srikanta Jana, Sudipa Mondal & Chittaranjan Sinha\*

427 Catalytic liquid phase oxidation of cyclohexane with *tert*-butylhydroperoxide over transition metal exchanged  $\alpha$ -zirconium phosphate

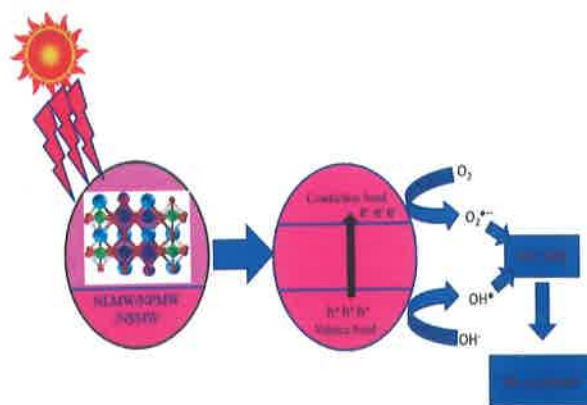
The catalytic system,  $\alpha$ -ZrP.M/dry TBHP, shows 50% selectivity each for cyclohexanone and cyclohexanol with 6.12% conversion in oxidation of cyclohexane after 5 h of reaction. The order of reactivity of  $\alpha$ -ZrP.M for the oxidation of cyclohexane to cyclohexanone and cyclohexanol is:  $\alpha$ -ZrP.Mn(II) >  $\alpha$ -ZrP.Cu(II) >  $\alpha$ -ZrP.Fe(III). The catalyst can be reused for three cycles.



Savita Khare\*, Priti Shrivastava, Rajendra Chokhare, Jagat Singh Kirar & Swati Parashar

435 Synthesis, characterization, luminescence and photocatalytic studies of layered perovskites NaMMgWO<sub>6</sub> (M = La, Pr, Sm)

The synthesis, characterization, and, optical and photocatalytic studies of AA'BB'X<sub>6</sub> type perovskites, (NaMMgWO<sub>6</sub>, M = La, Pr, Sm), prepared by ethylene glycol assisted gel-burning method, are reported. Photocatalytic studies in the presence of NLMW, NPMW and NSMW show methyl violet degradation to be about 91%, 80% and 78% after 180 min visible light illumination respectively. In the case of methyl blue, degradation to the extent of 94%, 88% and 86% respectively (including photolysis of MB) is observed in the presence of NLMW, NPMW and NSMW.

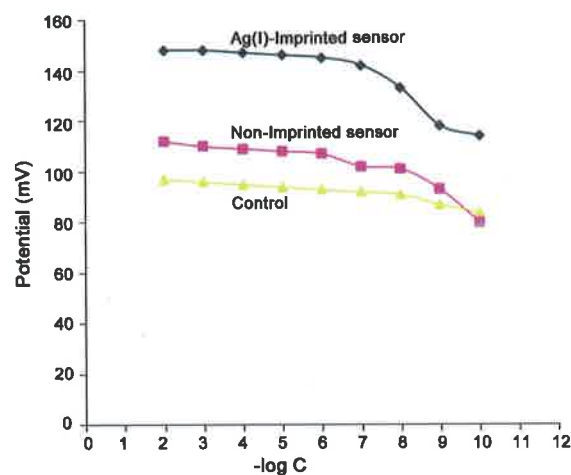


Sreenu K, Gundeboina Ravi, CH Sudhakar Reddy, Ravinder Guje & M Vithal\*

## Notes

## 444 Methacryloyloxycalix[4]arene based ion imprinted polymer as Ag(I) potentiometric sensor

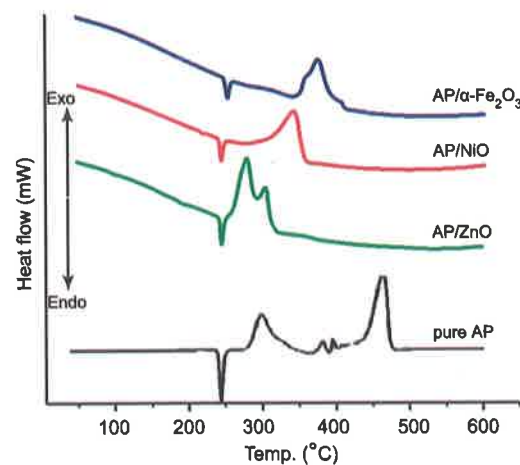
A potentiometric sensor for determination of Ag(I) ions has been prepared via suspension polymerization using ethylene glycol dimethacrylic acid as cross-linker, 2, 2-azobisisobutyronitrile as initiator and methacryloyloxycalix[4]arene as the monomer. The sensor responds to Ag(I) in the pH range of 2.0–8.0 with a linear working range of  $1.0 \times 10^{-3}$  –  $1.0 \times 10^{-7}$  M and detection limit of  $1.53 \times 10^{-8}$  M.



İzzet Şener, Şeyma Avcı, Deniz Uğurağ & Ebru Birlik Özkütük\*

449 Sonochemical synthesis of ZnO, NiO and  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanoparticles and their catalytic activity for thermal decomposition of ammonium perchlorate

NiO, ZnO and  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanoparticles are successfully prepared by ultrasonic method and investigated for their catalytic activity in the thermal decomposition of ammonium perchlorate. In the presence of ZnO and NiO nanoparticles, the high temperature decomposition peak of ammonium perchlorate decreases by about 120 °C and 105 °C, respectively. In the presence of  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanoparticles, the high temperature decomposition peak of ammonium perchlorate decreases by 67 °C, while the low temperature decomposition peak disappears.



Seyed Ghorban Hosseini\* & Zahra Khodadadipoor

## 455 Guide to Authors

Authors for correspondence are indicated by (\*)

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