

Kemagnetan Kimia pada Coupling Pertukaran Kompleks Bimetalik Tembaga(II)-Nikel(II) dan Transisi Spin Kompleks Besi

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Abstrak: Senyawa bimetalik NiCu(cda).6H₂O mempunyai sifat magnetik yang mengikuti hukum curie dengan nilai konstanta produk $\chi T \approx 1,6 \text{ emu K mol}^{-1}$ pada rentang temperatur 4-300 K. Kompleks Fe(phen)₃²⁺ adalah diamagnetik (pada spin rendah, LS). Penggantian satu ligan phen dengan dua gugus NCS⁻ dalam membentuk senyawa [Fe(phen)₂(NCS)₂] menurunkan kekuatan medan ligan, bahwa kompleks tersebut berperilaku spin tinggi pada suhu ruang tetapi terjadi sebaliknya dalam keadaan spin rendah pada suhu $\leq 175 \text{ K}$. Spektrum transmisi Mossbauer ⁵⁷Fe pada senyawa [Fe(phen)₂(NCS)₂] menunjukkan transisi spin terjal pada $T_{1/2} \approx 185 \text{ K}$.

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PENETAPAN TIMBAL, KADMIUM DAN TEMBAGA SECARA VOLTAMETRI PELARUTAN KEMBALI

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ABSTRACT: The low concentration analysis of Lead, Cadmium, and Copper have been conducted by Differential Pulse Anodic Stripping Voltametry (DPASV) method using Hanging Mercury Dropping Electrode (HMDE). DPASV method comprises two important steps. The first step is deposition of a metal at the electrode surface by electrolysis carried out by controlled potential. The second step is the metal stripping which has been precipitated at the electrode into the solution. The current, that is generated by stripping, is recorded by differential pulse mode. The optimum condition of instrumental parameters are deposition potential -700 mV, deposition time 90 seconds, stripping rate 2000 rpm, 5 size of mercury drop and supporting electrolyte nitric acid at pH 1,5 which is produced by dilution of 50 μ L of 65% nitric acid suprapure until 10 mL solution. The precision (coefficient of variation) of analytical method was 9,24% Cd, 9,80% Pb, and 9,68% Cu. The accuracy of analytical method was 2,5% Cd, +1,76% Pb, and +7,30% Cu. The detection limit of analytical method was 29,9760 ng/L Cd, 42,4283 ng/L Pb, and 275,3222 ng/L Cu. The computation of concentration was based on twice addition standard technique.

Key Words : Stripping Voltametry, low concentration, optimum condition