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Imobilisasi Ditzon Pada Zeolit alam dan Pemanfaatannya Sebagai Adsorben Hg(II)

Karelius, Dr. rer. nat. Nurul Hidayat Aprilita, M. Si.

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DAFTAR PUSTAKA

Adamson, A.W., 1990, *Physical Chemistry of Surfaces*, edisi ke-5, John Wiley and Sons Inc, New York.

Afzali, D., Mostafavi, A., Taher, M. A., Rezacipour, E., and Maharani, M. K., 2005, Natural Analcime Zeolite Modified with 5-Br-PADAD for Preconcentration and Anodic Stripping, Voltammetry Determination of Trace Amount of Cadmium, *anal. Sci*, 21, 283.

Alberty, R.A, dan Daniels F., 1987, *Physical Chemistry of Surfaces*, edisi ke-5, John Wiley and Son., New York.

Anonim, 2006, *Mercury (elemen)*, [http://en.wikipedia.org/wiki/Mercury-\(elemen\)](http://en.wikipedia.org/wiki/Mercury-(elemen)), diakses tanggal 13 Desember 2006.

Anonim, 2004, *Chemical of the Week Mercury*, <http://scipun.chem.wish.edu/chemweek/mercury/merkury.html>, diakses tanggal 13 Desember 2006.

Anonim, 2005, *Ditizone*, <http://www.hazardous.chem.org/ditizone.html>, diakses tanggal 13 Desember 2006.

Atkins, P.W., 1982, *Physical Chemistry*, edisi ke dua, Oxford University Press, Oxford.

Bell, R.G., 2001, *What are Zeolites?*, <http://www.bza.org/zeolites.html>, diakses tanggal 23 Juni 2007.

Bilba, D., Bejan, D., dan Tofan, L., 1998, Chelating Sorbents in Inorganic Chemical Analysis, *Croatica Chem. Acta*, 71, 155-178

Blanchard, G., Maunaye, M., dan Martin, G., 1983, Removal of Heavy Metals from Water by Means of Natural Zeolites, *Water Res.*, 18 No.12, 1501-1507.

Carasek, E., Tonjes, J.W and Scharf, M., 2002, A new Method of Microvolume Backtitration Procedure for Enrichment of Pb and Cd and Determiation of Flame Atomic Absorption Spectrometer, *Talanta*, 56, 185-191.

Chojnacki, A., Chojnacka, K., Hoffman, J., dan Gorecki, H., 2004, The Application of Natural Zeolit for Mercury Removal: From Laboratory to Industrial Scale, *Mineral Engineering*, 17, 933-937.



- Christian, G.D. and O'Reilly, J.E., 1986. *Instrumental Analysis*, 2nd edition, Allyn and Bacon, Boston.
- Crosby, Donald G, 1998, *Environmental Toxicology and Chemistry*, Oxford University Press, New York, 214-215, 224-225.
- Darmono, 1995, *Logam dalam Sistem Biologi Makhluk Hidup*, UI-Press, Jakarta.
- Filho, N.L.D., Gushiken, Y., dan Piloto, W. L., 1995, 2-Mercaptobenzothiazole Clays as Matrix for Sorption and Preconcentration of Some Heavy Metals from Aqueous Solution, *Anal. Chim. Acta*, 306, 167-172.
- Gaspard, M.A., Neven, A., dan Martin, G., 1983, Clinoptilolite in Drinking Water Treatment for NH₄⁺ Removal, *Water Res.*, 17, 279-288.
- Guibal, E and Tobin, J.M., 1998, Chitosan Sorbent for Platinum Sorption from Dilute Solution, *Ind. Eng. Chem. Res.*, 38, 4011-4023.
- Hagiwara, Z., dan Uchida, M., 1976, Ion Exchange Reaction of Processed Zeolite and Its Application to the Removal of Ammonia-nitrogen in Waters, A Selection of Paper Presented in 76 An International Conference on The Occurrence, Properties and Utilization of Natural Zeolite, Arizona.
- Hamdan, H., 1992, Introduction to Zeolites: Synthesis Characterization, and Modification, *University Technology Malaysia*, 1-5, 34-37
- Haraide, M., dan Shibata, W., 1998, Collection of Heavy Metals on Ditzone impregnated Admicells for Water Analysis, *Anal. Sci.*, 1998, vol.14, 1085-1088.
- Harben, P.W and Kurzvart, M., 1996, Industrial Mineral: A Global Geology, Industrial Materials Information Ltd, *Metal Bulletin PLC, London P*, 445-450.
- Hay, R.L., 1996, *Zeolites and Zeolitic Reaction In Sedimentary Rocks*, Dept. Geology and Geophysics, University of California, Berkeley, California.
- Irving, H. M. N. H. and Nowica, T., 1971, A Secondary Ditzone Complex Containing Both Silver and Mercury, *Analytica Chimica Acta*, 54: 55-64
- Iso, F., Shibata, T., dan Okonogi, T., 1976, Treatment of Dyeing Waste Liquor with Waste Sludge from Luminium Production Factory, *Pollution Control*, 47, 448-464.



Kettle, S.F.A., 1998, *Physical Inorganic Chemistry : A Coordination Chemistry Approach*, Oxford University Press, New York, 80-82.

Krabbenhoft, and DA. Rickurt, 1995, *Mercury Contamination of Aquatic Ecosystem*, <http://water.usgs.gov/wid/Fs-216-95/Fs-216-93.html>, diakses tanggal 15 Desember 2006.

Kunarti, Eko Sri, 1994, *Pembentukan dan Karakteristik Pemisahan Kromatografi Senyawa Kompleks Dietiltiokarbamat dan Ditzonat*. Tesis. Universitas Gadjah Mada. Yogyakarta.

Liang, P., dan Chen, C., 2005. Precocentration of Rare Earth Elements on Silica Gel Loaded with 1-phenyl-3-methyl-4-benzoylpyrazon-5-one Prior to their Determination by ICP-AES, *Anal. Sci.*, October 2005, Vol. 21, 1185-188.

Lyman, M.M., Klidiuff, J.E., dan Weber, Jr.W.J., 1995, Adsorption of p-Nitrophenol from Dilute Solution, *J.Chem.Educ.*, 72, 80-84.

Mahmoud, M.E., Osman, M.M., and Amer, M.E., 2000, Selective Preconcentration and Solid-phase Extraction of Mercury (II) from Natural Water by Silica Gel-loaded Ditzon Phases, *Anal.Chim Acta*, 415, 33-40.

Manahan, S.E., 2000, *Enviromental Chemistry*, Seventh edition, Lewis Publisher, Washington D.C., 189-195.

Marczenco, Z., 1986, *Separation and Spectrophotometric Determination of Elemens*, IIs Horwood Ltd : Chichester, west Sussex, UK.

Mason, B., dan Moore, C.B., 1982, *Principle of Geochemistry*, John Wiley and Sons Inc., New York.

Miettien, J.K., 1977, *Inorganic Trace Element as Water Pollutan to Health and Aquatic Biota* dalam F. Coulation and E. Mark, Ed. Water Quality Proceed of an Int. Forum, Academic Press, New York.

Mudasir, Dewi, M., Gati P., Roto, 2007, Pre-concentration Study of Pb(II) and Cd(II) from aqueous Solution Using Silica Gel Loaded with Ditzone, *Journal of Ion Exchange*, 18 : 515-517

Mudasir, Dwi S., Pius D.O., 2007, Adsorption Characteristics of Pb(II) and Cd(II) Ions on Ditzon-loaded Natural Zeolite, *Journal of Ion Exchange*, 18 : 515-517



Oscik, J., 1982, *Adsorption*, Ellis Harwood Limited, England.

Pohkonen, SO, 2002, *Dynamic Cycling of Mercury in a Multiphase Atmosphere*,
<http://www.uwec.edu/piercech/Hg/mercury-atmosphere/cycling.htm>, diakses tanggal 15 Desember 2006.

Radojevic, M., Vladimir N.Bashkin.(1998).*Practical Environmental Analysis*. RSC.

Salih, B., Denizli, A., Kavaklı, C., Say, R and Piskin, E., 1998, Adsorption of Heavy Metal Ions onto Ditzone-anchored Poly(EGDMA-HEMA) Microbeans, *Talanta*, 46, 1205-1213.

Santosa, S.J. 2001. Adsorption Kinetic of Cd(II) and Cr(III) by Humic Acid, dalam Prosiding Seminar Nasional Jurusan Kimia IX Universitas Gadjah Mada, Yogyakarta, 21 Mei 2001.

Saputra, Rodhie, 2004, *Pemanfaatan Zeolit Sintetis Sebagai Alternatif Pengolahan Limbah Industri*, <http://www.grdc.esdm.go.id>, diakses tanggal 15 Desember 2006.

Silverstein, Bassler and Moril, 1963, *Spectrometric Identification of Organic Compounds*, 4th edition, Menlo Park, California.

Sri Lestari, Eko Sugiharto dan Mudasir, 2002, Pengaruh pH dan Konsentrasi Awal Terhadap Adsorpsi Tembaga oleh *Saccharomyces cerevisiae* yang Terimobilisasikan pada Silika Gel, Prosiding Seminar Kimia Analitik 2002, Yogyakarta 02 November 2002, 27-31.

Sriyanti, 2000, *Impregnasi 2-Mercaptobenzotiazol pada Zeolit Alam dan Pemanfaatannya Pada Adsorbsi Selektif Cd (II) dan Fe (II) dalam Madium Air*, Thesis Universitas Gadjah Mada, Yogyakarta.

Stoepler, 1992, *Hazardous Metals in Environment*, Elsevier, Amsterdam, 177-282.

Taher, M.A., Mabarakeh, S.Z.M., 2005, Determination of Trace Copper by FAAS after Solid Phase Extraction and Precocentration onto Amberlite XAD-2 Loaded with Nitroso-R Salt, *Turk J.Chem.*, 29, 17-25.

Terada, K., Matsumo, K., dan Kimuro H., 1983, Sorption of Copper (II) by Some Complexing Agents Loaded on Various Support, *Anal Chim., Acta*, 237-247.



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Venglovska, J., 2001, Adsorption Properties of Zeolit (Clinoptilolite) and Bentonite Applied to Pig Slurry, *Research Institute of Experimental Veterinary Medicine*, Slovak Republic, 363-369.



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