ICICS 2012

INTERNATIONAL CONFERENCE OF THE INDONESIAN CHEMICAL SOCIETY

CERTIFICATE OF ATTENDANCE

Himpu
Kimia
Indon

This is to certify that

Jaslin Ikhsan

has been participated as

Presenter

in

INTERNATIONAL CONFERENCE OF THE INDONESIAN CHEMICAL SOCIETY

"Strengthening Research and Innovation in Chemical Science for Better Quality of Life"

University of Brawijaya, Malang
4 - 5 September 2012

President of HKI,	Head of HKI East Java,	Chairman of ICICS,
Muhamad A. Mortoprawiro, Ph.D.	Lukman Atmaja, Ph.D.	Dr. Rer. Nat Rachmat Triandi T.,

Himpunan Kimia Indonesia

KEMENTRIAN PENDIDIKAN DAN KEBUDAYAAN
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SURAT TUGAS/IZIN

Nomor : 4595 /UN34.13/KU/2012

Dekan Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Negeri Yogyakarta memberikan tugas/ijin kepada:

No	Nama	NIP	Jurusan
1	Jaslin Ikhsan, PhD	19680629 199303 1 001	Pendidikan Kimia

Keperluan : Internasional Conference of The ICS HKI Jawa Timur

Tanggal : 4– 5 September 2012

Tempat : Jawa Timur

Keterangan : Berdasarkan Surat Permohonan dari Sekjurdik Biologi No. 1041/UN34.13 /KILL/2012, Tanggal 29 Agustus 2012

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Surat tugas/izin ini diberikan untuk dilaksanakan sebaik-baiknya dan atas perhatiannya diucapkan terimakasih.

Yogyakarta, 29 Agustus 2012
Dekan FMIPA UNY

Dr. Hartono
NIP. 19620329 198702 1 002

ABSTRACT BOOK

ICICS 2012

INTERNATIONAL CONFERENCE OF THE INDONESIAN CHEMICAL SOCIETY

INTERNATIONAL CONFERENCE OF THE INDONESIAN CHEMICAL SOCIETY 2012

Organized by HKI - East Java

BRAWIJAYA UNIVERSITY
MALANG, INDONESIA
SEPTEMBER 4-5TH 2012

HKI Himpunan Kimia Indonesia

UNESA Universitas Negeri Surabaya

UNIVERSITAS MA CHUNG

TIME SCHEDULE

1st Day, Tuesday, 4 September 2012

Time	Program	Speaker	Venue
07.30-08.30	Registration	-	6th Floor
08.30-09.00	*Opening ceremony*	**Opening speech** -Chairman of HKI East Java -Chairman of ICICS -Dean of Faculty of Science or Rector of Brawijaya University	Main Hall
09.00-10.00	**Plenary I**	Keynote Speech I	Hall
10.00-10.20	*Coffee break*	-	6th Floor
10.20-11.20	**Plenary II**	Keynote Speech II	Hall
11.30-12.00	**Parallel Session 1**	Invited Speaker 1	Room 1-Room 5
12.00-12.30		Invited Speaker 2 / sponsorship	
12.30-13.30	*Lunch break*	-	6th Floor
13.30-14.00	**Poster Session**		6th Floor
14.00 -15.10	**Parallel Session II**		Room 1-Room 5
15.10-15.30	*Coffee break*	-	6th Floor
15.30-16.05	**Parallel Session III**		Room 1-Room 5

2nd Day, Wednesday, 5 September 2012

Time	Program	Speaker	Venue
07.00-08.00	**Registration**	-	6th Floor
08.00 - 08.30	**Parallel Session IV**	Invited Speaker 3	Room 1-Room 5
08.30-09.40	**Parallel Session V**		Room 1-Room 5
09.40-10.00	*Coffee break*	-	6th Floor
10.00-11.10	**Parallel Session VI**		Room 1-Room 5
11.10-11.40	**Poster Session**		6th Floor
11.45-13.00	*Lunch break*	-	6th Floor
13.00-13.35	**Parallel Session VII**		Room 1-Room 5
13.40-14.00	**Award**		
14.00-14.15	*Closing Ceremony*		Main Hall

***see pages 41 - 165 for oral presentation abstract**
**** see pages 167 - 240 for poster presentation abstract**

The Detail of Oral Presentation

Tuesday, 4 September 2012

Day 1 – Natural Products and Biochemistry
(Session 2) **14.00 - 15.10**

Day 1 – Natural Products and Biochemistry
(Session 3) **15.30 - 16.05**

Day 1 – Physical and Analytical Chemistry
(Session 2) **14.00 - 15.10**

Day 1 – Physical and Analytical Chemsitry
(Session 3) **15.30 - 16.05**

Day 1 – Applied and Material Chemistry
(Session 2) **14.00 - 15.10**

Day 1
(Session 2)

Day 1 – Inorganic Chemistry and Environmental
(Session 3) 15.30 - 16.05

Day 1 – Organic Chemistry and Education
(Session 2) 14.00 - 15.10

Day 1 – Organic Chemistry and Education
(Session 3) 15.30 - 16.05

Wednesday, 5 September 2012

Day 2 – Natural Products and Biochemistry

(Session 2) **08.30 - 09.40**

Day 2 – Natural Products and Biochemistry

(Session 3) **10.00 - 11.10**

Day 2 – Natural Products and Biochemistry

(Session 4) **13.00 - 13.35**

Day 2 – Physical and Analytical Chemistry
(Session 2) **08.30 - 09.40**

Day 2 – Physical and Analytical Chemistry
(Session 3) **10.00 - 11.10**

Day 2 – Physical and Analytical Chemistry
(Session 4) **13.00 - 13.35**

Day 2 – Applied and Material Chemistry
(Session 2) **08.30 - 09.40**

Day 2 – Applied and Material Chemistry
(Session 3) **10.00 - 11.10**

Day 2 – Applied and Material Chemistry
(Session 4) **13.00 - 13.35**

Thermodinamic Parameters on the Sorption of Phosphate Ions by Montmorillonite

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ABSTRACT

The sorption of phosphate by montmorillonite at 10, 30, and 50°C was investigated aiming to mainly determine thermodinamic parameters for the formation of surface complexes in the adsorption of phosphate ions by montmorillonite. Data were collected by adsorption edge experiments investigating the effect of pH, adsorption isotherms enabling the effect of sorbate concentration, and acid-base titration calculating protons released or taken up by adsorption process. Data analysis was carried out using surface complexation model to fit the data collected in this study using the parameters obtained from previous study, as well as to calculate the values of ΔH and ΔS. Previous study reported that phosphate ions formed two outer-sphere surface complexes with active sites of montmorillonite through hydrogen bonding. In the first complex, $[(XH)^0 - H_2L^-]^-$, the phosphate was held to permanent-charge X^- sites on the tetrahedral siloxane faces, and the second complex, $[[(SO^-)(SOH)]^- - [H_2L]^-]^{-2}$was formed through the interaction between the phosphate and variable charge surface hydroxyl groups at the edges of montmorillonite crystals and on the octahedral alumina faces. The values of ΔH for the first and second reactions are 39.756 and 3.765×10^{-7} kJ mol^{-1} respectively. Since both reactions have positive entalphy values, it can be concluded that the reactions are endothermic. Large energy for the first reaction is needed by X^- sites (permanent negatively charge sites of montmorillonite) to be partially desolvated, on which K^+ or other surface cations are replaced by H^+ ions in the surface protonated process, and are then ready to interact phosphate ions in the solution. Small values of ΔH for the second reactions indicates that hydrogen bonds formed by phosphate and SOH sites in the second reaction are easily broken out, and the phosphate can easily desorbed from the surface. The values of ΔS for the first and second reactions are 122.523 dan 2.393×10^{-2} J K^{-1} mol^{-1}, which are greater than -10 kJ mol^{-1} and indicates that the surface reactions occurs through dissociative mechanisms.

Keywords: *temperature, adsorption, extended constant capacitance surface complexation model (ECCM), entalphy, reaction mechanisms.*