Current Chemistry Letters

ISSN 1927-730X (Online) - ISSN 1927-7296 (Print)
Quarterly Publication

Welcome to the online submission and editorial system for

" Current Chemistry Letters"

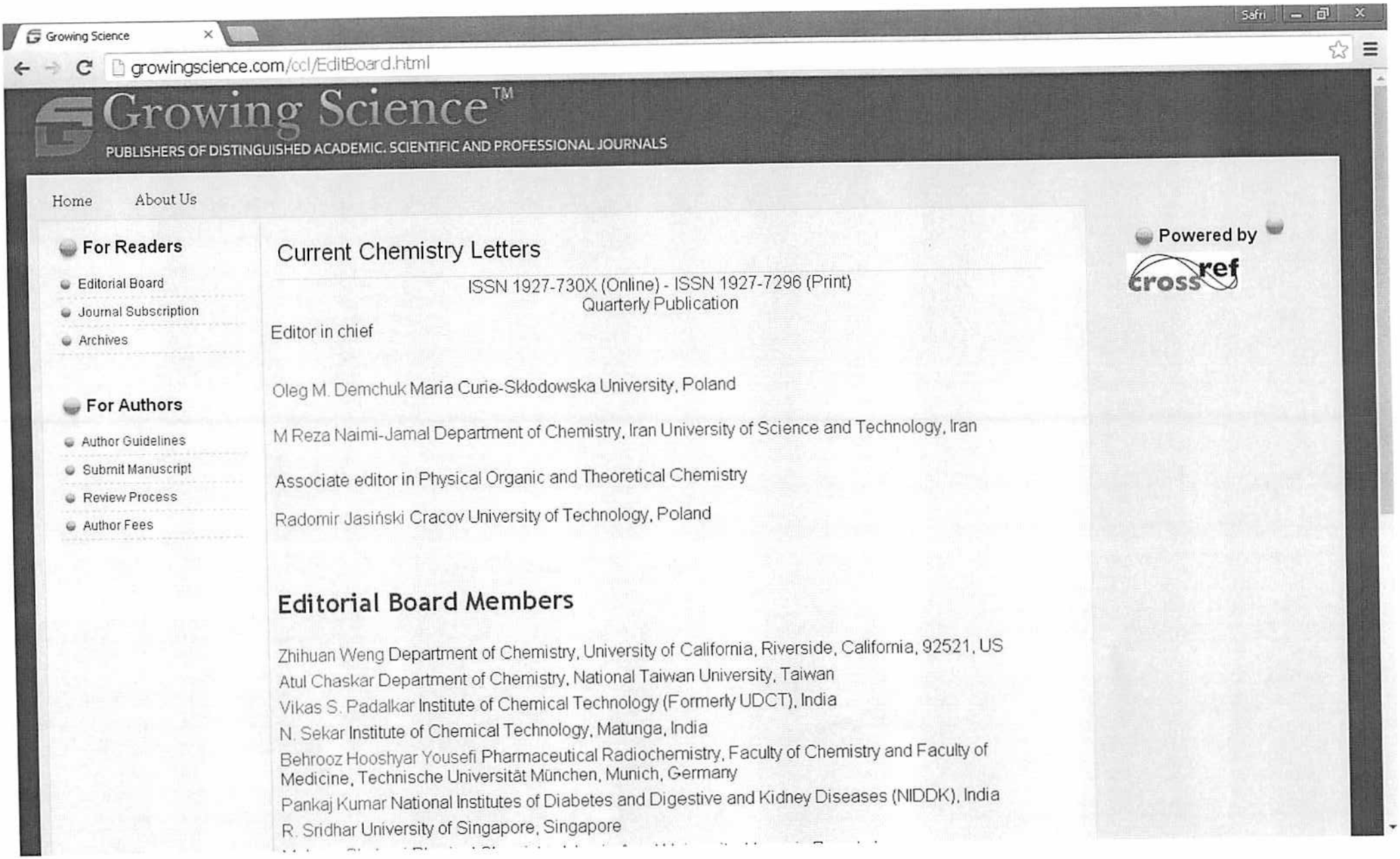
The "Current Chemistry Letters" is a peer-reviewed international journal which aims to publish all the current and outstanding research articles, reviews and letters in chemistry including analytical chemistry, green chemistry, inorganic chemistry, organic chemistry, physical chemistry, etc.
It is a journal for all academic and industrial researchers and scientists who are expert in all major advances in chemistry research. The journal aims to provide the most complete and reliable source of information on current developments in these fields. The emphasis will be on publishing quality articles rapidly and openly available to researchers worldwide. Please note readers are free to read, download, copy, distribute, print, search, or link to the full texts of articles published on this journal.

It is our great pleasure to announce that IUPAC is now seeking nominations for The 2016 VII CHEMRAWN Prize for Green Chemistry! The Prize of USD 5000 is granted to a **YOUNG INVESTIGATOR** (less than 45 years of age) **FROM AN EMERGING REGION**, who is actively contributing to research in **GREEN CHEMISTRY**. Nominations for the 2016 Prize must be submitted by 25 March 2016. The award will be presented at the 6th IUPAC International Conference on *Green Chemistry, 4-8 September 2016, Venice, Italy*. The winner will be also asked to give a lecture on that Conference. To submit *Click Here*

Current Chemistry Letters is indexed by Chemical Abstract, DOAJ, Indexcopernicus and many Electronic Journals
Libraries in well known universities around the world

(2)

1.b.1



Growing Science

growingscience.com/ccl/EditBoard.html

Growing Science™

PUBLISHERS OF DISTINGUISHED ACADEMIC, SCIENTIFIC AND PROFESSIONAL JOURNALS

Home About Us

For Readers

- Editorial Board
- Journal Subscription
- Archives

For Authors

- Author Guidelines
- Submit Manuscript
- Review Process
- Author Fees

Powered by crossref

Current Chemistry Letters

ISSN 1927-730X (Online) - ISSN 1927-7296 (Print)
Quarterly Publication

Editor in chief

Oleg M. Demchuk Maria Curie-Skłodowska University, Poland

M Reza Naimi-Jamal Department of Chemistry, Iran University of Science and Technology, Iran

Associate editor in Physical Organic and Theoretical Chemistry

Radomir Jasiński Cracov University of Technology, Poland

Editorial Board Members

Zhihuan Weng Department of Chemistry, University of California, Riverside, California, 92521, US

Atul Chaskar Department of Chemistry, National Taiwan University, Taiwan

Vikas S. Padalkar Institute of Chemical Technology (Formerly UDCT), India

N. Sekar Institute of Chemical Technology, Matunga, India

Behrooz Hooshyar Yousefi Pharmaceutical Radiochemistry, Faculty of Chemistry and Faculty of Medicine, Technische Universität München, Munich, Germany

Pankaj Kumar National Institutes of Diabetes and Digestive and Kidney Diseases (NIDDK), India

R. Sridhar University of Singapore, Singapore

Volume 4 Number 2 Pages 45-84

1. Preparation and characterization of nickel oxide nanoparticles and their application in glucose and methanol sensing , *Pages: 45-54*

Mahsa Hasanzadeh and Reza Emamali Sabzi PDF (230 K)

Abstract: In this work, a low cost glucose and methanol nonenzymatic sensor was prepared using nickel oxide (NiO) nanofilm electrodeposited on a bare Cu electrode. Electrochemical deposition was assisted with cetyl trimethylammonium bromide (CTAB) as a template. Scanning electron microscopy (SEM) was applied to observe the surface morphology of the modified electrode. Cyclic voltammetry (CV) and amperometry techniques were used to study the electrocatalytic behavior of NiO porous film in glucose and methanol detection. For glucose sensing, the electrode showed a linear relationship in the concentration range of 0.01-2.14 mM with a low limit of detection (LOD) 1.7 μM (signal/noise ratio (S/N)=3). Moreover, high sensitivities of 4.02 mA mM−1 cm−2 and 0.38 mA mM−1 cm−2 respectively in glucose and methanol monitoring suggested the modified electrode as an excellent sensor. The NiO-Cu modified electrode was relatively insensitive to common biological interferers. This sensor possessed good poison resistance towards chloride ions, and long term stability and significant selectivity towards glucose and methanol. Finally the proposed sensor was successfully applied for determination of glucose in human blood serum samples.

DOI: 10.5267/j.ccl.2015.3.003
Keywords: Electrocatalysis, Nickel oxide, Glucose sensor, Electrochemical sensor, Nonenzymatic sensor

2. The synthesis of polystyrene with a new chemical approach , *Pages: 55-60*

Naima Bensaada Moulkheir Ayat, Rachid Meghabar and Mohammed Belbachir PDF (230 K)

Abstract: The bulk room-temperature polymerization of styrene initiated by environmentally friendly catalysts Maghnite-Na+ is investigated. The catalyst removed from the reaction mixture simply by filtration could be regenerated and reused. The effect of the Maghnite-Na+ catalyst loading on degree of polymerization had been studied and state their inverse relation. The catalyst was characterized by X-ray diffraction and FTIR spectroscopy.

DOI: 10.5267/j.ccl.2015.3.002
Keywords: Polymerization, Polystyrene, Montmorillonite, Maghnite-Na+

3. Polyurethanes as self-healing materials , *Pages: 61-66*

Tomasz Szmechtyk Natalia Sienkiewicz, Joanna Woźniak, Krzysztof Strzelec PDF (230 K)

Abstract: The current development of polyurethane self-healing materials has been evaluated and reviewed. Three main ways of self-healing – microcontainers, microvascular networks and reversible polymers - are described, and recent most prominent examples of self-healing materials applications presented.

DOI: 10.5267/j.ccl.2015.3.001
Keywords: Polyurethanes, Self-healing, Microcontainers, Reversible Polymer Microvascular Network

4. Electrochemical and AFM studies on adsorption behavior of a Polynuclear Schiff Base at carbon steel in HCl medium , *Pages: 67-76*

Shaju K Shanmughan, Joby Thomas Kakkassery, Vinod P Raphael and Nimmy Kuriakose PDF (230 K)

Abstract: The adsorption behavior of a potential polynuclear Schiff base, (s)-2-(anthracen-9(10H)-ylideneamino)-3-phenyl propanoic acid (A9Y3PPA) on carbon steel (CS) in 1M hydrochloric acid solution has been investigated using weight loss measurements, electrochemical impedance spectroscopy (EIS) and potentiodynamic polarization studies. The surface morphology of the carbon steel specimens in the presence and absence of the inhibitor was evaluated by AFM analysis. The corrosion inhibition efficiencies of parent amine and parent ketone on carbon steel in 1M HCl solution have also been investigated using weight loss studies. The adsorption of A9Y3PPA obeys Langmuir adsorption

isotherm. Thermodynamic parameters (Kads, ΔG0ads) were calculated using the adsorption isotherm. Activation parameters of the corrosion process (Ea, ΔH* and ΔS*) were also calculated from the corrosion rates obtained from temperature studies. Tafel plot analysis revealed that A9Y3PPA acts as a mixed type inhibitor. A probable inhibition mechanism was also proposed.

DOI: 10.5267/j.ccl.2015.2.001
Keywords: Carbon Steel, Corrosion Inhibitors, Impedance, Adsorption, AFM

5. **Validation of a modified alcohol dehydrogenase assay for ethanol determination** ,
Pages: 77-84
Safri Ishmayana, Muhammad Fadhlillah, Yogi Y. Kristia and Harry Budiman *PDF (230 K)*

Abstract: Enzymatic assay, based on oxidation-reduction reaction catalyzed by alcohol dehydrogenase, is one of the methods used to determine ethanol concentration. The present study was directed to determine the exact amount of enzyme required to accomplish oxidation-reduction reaction so that the concentration of ethanol in the sample can be determined precisely and accurately. Results of the present study indicate that the lowest unit activity of the enzyme that can be used for ethanol determination is 4000 units/mL, even though longer incubation time compared to the original method was used to ensure reaction completion. Validation of the method confirmed that the assay have acceptable linearity range within 0.01 - 0.06% (v/v) of ethanol with correlation coefficient of 0.9999. Both accuracy and precision parameters fulfill the Association of Analytical Communities (AOAC) International requirement, and therefore can be accepted as a quantitative analysis method. Limit of detection and limit of quantitation for the modified method were 0.0017% (v/v) and 0.0056% (v/v), respectively.

DOI: 10.5267/j.ccl.2015.1.001
Keywords: Ethanol determination, Alcohol dehydrogenase, Enzymatic assay, Method validation

Current Chemistry Letters 4 (2015) 77–84

Contents lists available at Growing Science

Current Chemistry Letters

homepage: www.GrowingScience.com/ccl

Validation of a modified alcohol dehydrogenase assay for ethanol determination

Safri Ishmayana[a*], Muhammad Fadhlillah[a], Yogi Y. Kristia[b] and Harry Budiman[c]

[a]*Department of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Jln. Raya Bandung-Sumedang km. 21 Jatinangor, Sumedang, West Java, 45363, Indonesia*
[b]*Department of Chemistry, Faculty of Science and Technology, Sunan Gunung Djati Islamic State University, Jln. A.H. Nasution No. 105 Cibiru, Bandung, West Java, 40614, Indonesia*
[c]*Research Centre for Chemistry, Indonesian Institute of Sciences, Serpong PUSPITEK area, Banten, 15314, Indonesia*

C H R O N I C L E

Article history:
Received October 21, 2014
Received in revised form
December 02, 2014
Accepted 26 January 2015
Available online
26 January 2015

Keywords:
Ethanol determination
Alcohol dehydrogenase
Enzymatic assay
Method validation

A B S T R A C T

Enzymatic assay, based on oxidation-reduction reaction catalyzed by alcohol dehydrogenase, is one of the methods used to determine ethanol concentration. The present study was directed to determine the exact amount of enzyme required to accomplish oxidation-reduction reaction so that the concentration of ethanol in the sample can be determined precisely and accurately. Results of the present study indicate that the lowest unit activity of the enzyme that can be used for ethanol determination is 4000 units/mL, even though longer incubation time compared to the original method was used to ensure reaction completion. Validation of the method confirmed that the assay have acceptable linearity range within 0.01 - 0.06% (v/v) of ethanol with correlation coefficient of 0.9999. Both accuracy and precision parameters fulfill the Association of Analytical Communities (AOAC) International requirement, and therefore can be accepted as a quantitative analysis method. Limit of detection and limit of quantitation for the modified method were 0.0017% (v/v) and 0.0056% (v/v), respectively.

1. Introduction

The importance of quantitative analysis of ethanol in foods, medicines, fuel products, and clinical applications require a powerful analysis method. Some of methods that are currently used for ethanol quantitation include high performance liquid chromatography (HPLC)[1], gas chromatography (GC)[2, 3], titration[4], Fourier transform infrared (FTIR)[5-7] and colorimetry[8, 9].

Enzymatic assay for ethanol determination using alcohol dehydrogenase has already proposed by some authors[8, 10, 11]. The assay is based on the oxidation of ethanol to acetaldehyde which followed by conversion of β-Nicotinamide adenine dinucletide in the oxidized form (NAD^+) to the reduced form (NADH) catalyzed by alcohol dehydrogenase (ADH). To force the reaction into completion, semicarbazide is added in the reaction buffer which will bind acetaldehyde. The amount of NADH,

* Corresponding author. Tel: +62-22-7794391 Fax: +62-22-7794391
E-mail address: ishmayana@unpad.ac.id (S. Ishmayana)

doi: 10.5267/j.ccl.2015.1.001