



Book of Abstracts

ICASMI

**3rd International
Conference on
Applied Science
Mathematics
and Informatics**

**“Natural Sciences,
Mathematics and Informatics in
Industri Revolution (IR) 4.0 Toward
The Sustainable Development
Goals(SGDs)”**



2020

Introduction

The 3rd International Conference on Applied Science, Mathematics, and Informatics (ICASMI)

Bandar Lampung, 3-4 September 2020

Faculty of Mathematics and Natural Sciences, University of Lampung (FMIPA, UNILA) is honored and proud to organize the 3rd International Conference on Applied Science, Mathematics, and Informatics (ICASMI). The theme of the conference is theme "Natural Sciences, Mathematics and Informatics in the Industrial Revolution (IR) 4.0 toward the Sustainable Development Goals (SDGs)."

ICASMI is a biennial event with the aims to bring together international and local scientists, researchers, academicians, also students for sharing their research, exchanging ideas, networking, opening collaboration research. Even in the covid19 pandemic, ICASMI is still held this year. This year, all conference will be held online.

The Keynote speakers are competent in their filed of study. They come from different countries, such as, Japan, Malaysia, Turkey and Indonesia. This conference will provide an opportunity for presenters to present their

current research and results, and also for participants to learn up-to-date topics and researches in their field of study.

Best wishes and we welcome you to the 3rd ICASMI held in Bandar Lampung, Indonesia.

Organized by
**Faculty of Mathematics and Natural Sciences,
University of Lampung (FMIPA, UNILA)**

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The effect of initiator concentrations on corrosion inhibition activity of polymeric derivatives of 2-vinylpyridin

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ABSTRACT

This study aims to investigate the effect of initiator concentrations of polymeric derivatives of 2-vinylpyridine, P(2VP) as corrosion inhibitors of mild steel in CO₂-saturated brine solution. Polymerization of the monomer was conducted using hydrogen peroxide initiator with four different concentrations of 0.25; 0.33; 0.50; and 0.80 mole, to produce four oligomers referred to as P(2VP)A, P(2VP)B, P(2VP)C, and P(2VP)D, respectively. A series of corrosion experiments was conducted to determine the corrosion rate of the mild steel using weight loss and linear polarization resistance (LPR) methods. The effect of inhibitor concentration, and temperature, on the corrosion rate was also investigated. The oligomers synthesized were found to have different physical appearance. Two oligomers, the P(2VP)A and P(2VP)B, were found as yellow viscous liquids, with P(2VP)B is more viscous than P(2VP)A, while the other two oligomers, P(2VP)C and P(2VP)D exist as yellow solids. The experimental results reveal that the use of monomer led to higher corrosion rate compared to that of blank experiment, but reduced corrosion rate was achieved with the use of the oligomers. P(2VP)A as an oligomer synthesized with the lowest concentration of H₂O₂ initiator inhibited the corrosion more effective than the higher concentrations. It was also found that the higher the concentration of the oligomer, the better the protection. For temperature, the opposite is true, indicating that the oligomer was physically adsorbed onto the surface of mild steel.

keyword : 2-vinylpyridine monomer, oligomer, corrosion inhibitor, mild steel, brine solution