Study on the Extract of *Raphanus Sativus L* as Green Corrosion Inhibitor for Q235 Steel in HCl Solution

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doi: 10.20964/2018.04.16

Received: 31 November 2017 / Accepted: 22 January 2018 / Published: 6 March 2018

In this work, the extract of *Raphanus sativus L* (Sinapine thiocyanate, Inhi-ST) as green inhibitor was extracted and isolated by the dried and powdered semen raphanin from *Raphanus sativus L*. After the target green inhibitor isolated, it was characterized by ESI-MS, ¹H and ¹³C-NMR. Meanwhile, the corrosion inhibition of Q235 steel (QS) by Inhi-ST in HCl solution was evaluated using weight loss and potentiodynamic polarization measurement. The study results indicate that Inhi-ST is an effective green corrosion inhibitor for QS corrosion in HCl solution, the green corrosion inhibitor is a mixed-type inhibitor, and the inhibition efficiency increase with Inhi-ST concentration increasing, while which decrease with HCl concentration, temperature and storage time increasing. In addition, the adsorption of Inhi-ST on QS follows Langmuir isotherm, which is the mixed adsorption involving both chemisorption and physisorption.

Keywords: Semen Raphanin; Green Inhibitor; Electrochemical; Weight Loss; Chemisorption.

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