Int. J. Electrochem. Sci., 12 **(2017)** 11195 – 11211

International Journal of ELECTROCHEMICAL SCIENCE
www.electrochemsci.org

Inhibition Effect of Tangerine Peel Extract on J55 Steel in CO_2-saturated 3.5 wt. % NaCl Solution

Shuliang Wang[1], *Bensong Wu*[1], *Lanlan Qiu*[1,2], *Yuyao Chen*[1], *Jing Yuan*[1],*Songsong Chen*[1], *Mingyu Bao*[1], *Chunyan Fu*[1,*], *Xin Wang*[1,*]

[1] School of Materials Science and Engineering, Southwest Petroleum University, 8 Xindu Avenue, Chengdu, Sichuan 610500, China
[2] College of Materials Science and Engineering, Chongqing University, Chongqing 400044, China
[*]E-mail: wsliang1465@126.com, xin.wang@swpu.edu.cn

doi: 10.20964/2017.12.02

Received: 7 August 2017 / *Accepted:* 21 September 2017 / *Published:* 12 November 2017

Corrosion inhibition effect of a natural plant product, tangerine peel extract or TPE, on J55 steel in CO_2-saturated 3.5 wt. % NaCl solution was investigated. The results show that TPE is a good mixed type green inhibitor in the test solution. Inhibition efficiency was found to increase with the increase of the inhibitor concentration while decrease as the temperature increases. Adsorption behavior study of the TPE on J55 steel shows that it is a spontaneous physical process where a monolayer was eventually formed on the steel surface. The adsorption characteristics are also demonstrated and found to meet with the Langmuir isothermal absorption model and the El-Awady dynamic model.

Keywords: Corrosion inhibitor, Tangerine peel extract, J55 steel, CO_2 corrosion

FULL TEXT