

عنوان مقاله:

Cucumis Melon Fibers Seed and Leaf Extracts as Natural Descaler and Corrosion Inhibitor in Acid and Brine Solution

محل انتشار:

دوفصلنامه ایرانی شیمی تجزیه, دوره 10, شماره 1 (سال: 1402)

تعداد صفحات اصل مقاله: 8

نویسنده:

Fatemeh Banifatemeh - Department of Chemistry, Payame Noor University, ۱۹۳۹۵-۴۶۹۷ Tehran, Iran

خلاصه مقاله:

Effect of fibers of seeds inside Cucumis melon (Persian melon) extract (FE) and Cucumis melon leaves extract (LE) were investigated as descaler and inhibitor. In one part of this research, the effect of LE and FE for the solvent of Ca precipitates was investigated by gravimetric and electrochemical measurements. The decrease in the weight of calcium precipitate in the solution containing the extracts shows that the FE has the best effect as a solvent of Ca precipitate with ۶۲% efficiency due to lower pH. A comparison of the hardness of the solutions after dissolving the calcium precipitate shows an increase of about ۳ times the hardness of the solution containing FE compared to the blank. The second part is dedicated to the study of corrosion inhibition behavior of extracts on Cu corrosion in brine and acid solution by Tafel plot and electrochemical impedance spectroscopy (EIS). The solution containing the LE and FE shows higher polarization resistance (R_p) (about ۳.۵ times) and lower corrosion current density than the blank solution. While the LE shows more positive potential than the FE. Based on the results, the FE can be used to formulate a low-cost and environmentally friendly descaling agent, and the LE can be used as a green corrosion inhibitor.

کلمات کلیدی:

Cucumis melon, fiber seed extract, leaf extract, descaler, corrosion inhibitor

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1678093>

