

Use of Electrochemical Methods for the Inhibition of Scaling with Green Products

Authors : Samira Ghizellaoui, Manel Boumagoura

Abstract : The municipality of Constantine in eastern Algeria draws water from the Hamma groundwater source. The high fouling capacity is due to the high content of bicarbonate (442 mg/L) and calcium (136 mg/L). This work focuses on the use of three new green inhibitors for reducing calcium carbonate scale formation: gallic acid, quercetin and alginate, and on the comparison between them. These inhibitors have proven to be green antiscalants because they have no impact on the environment. Electrochemical methods (chronoamperometry and impedancemetry) were used to evaluate their performance. According to the study, these inhibitors are excellent green chemical inhibitors of scaling, and the best inhibitor is quercetin because it gave a good result with a lower concentration (2mg/L) compared to others inhibitors.

Keywords : scaling, green inhibitor, chronoamperometry, impedancemetry

Conference Title : ICESES 2023 : International Conference on Electrochemistry and Sustainable Energy Storage

Conference Location : Jeddah, Saudi Arabia

Conference Dates : November 20-21, 2023