**ABSTRACT**

Purpose

The aim of this paper was to investigate the corrosion inhibition potential of two synthesized benzothiazines, namely, 3,4-dihydro-2-methoxycarbonylmethyl-3-oxo-2H-1,4-benzothiazine (1) and ethyl 3-oxo-3,4-dihydro-2H-1,4-benzothiazine-2-carboxylate (2) on mild steel corrosion in 1M H2SO4.

Design/methodology/approach

Corrosion inhibition efficiency (IE%) was studied by weight loss measurements, potentiodyanmic polarization method, alternating current (AC) impedance spectroscopy, fourier transform infrared (FT-IR) spectroscopy and scanning electron microscopy. Quantum chemical approach was used to complement the experimental results.

Findings

The results obtained show that the IE% increased with inhibitor concentration and follow the order 2 > 1, obeying Langmuir adsorption isotherm. The calculated quantum chemical indices were consistent with experimental results.

Originality/value

This paper provides information on the inhibitive properties of new set of benzothiazines on mild steel corrosion in 1M H2SO4.