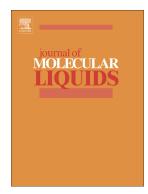
### Accepted Manuscript

Efficiency of cationic surfactant as microbial corrosion inhibitor for carbon steel in oilfield saline water



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## **ACCEPTED MANUSCRIPT**

#### Efficiency of cationic surfactant as microbial corrosion inhibitor for

#### carbon steel in oilfield saline water

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#### Abstract

The corrosion created by microorganisms (SRB) is a major problem in petroleum filed. In this study, the microbial corrosion impedance of carbon steel in oilfield saline water via quaternary ammonium salt (DDAC) has been estimated utilizing weight loss, electrochemical measurements and surface morphology analysis. Quantum chemical approach was used to ascertain the correlation between the inhibitive effect and molecular structure of DDAC. It showed that SRB increased the destruction of carbon steel in oilfield saline water compared to the control. DDAC restricted the corrosion rate of carbon steel whereas increased the difficulty in producing of SRB.

**Keywords:** oilfield saline water; carbon steel; microbiological corrosion; cationic surfactant

#### 1. Introduction

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