

Effect of Biocide extracted from castor beans in samples isolated from produced water

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The microbial colonization of metals and industrial alloys leads to formation of biofilms that can cause corrosion influenced by microorganisms (MIC) in localized regions altering ion concentrations, pH and oxygen levels. The oil industry is greatly impacted by problems caused by the presence of microorganisms in their facilities, such as biofilms, biocorrosion and deterioration of cables and metal structures and biogenic oil acidification. Biocides are substances having a high inhibitory power, capable of preventing microbial colonization and proliferation or even eliminate them. The desirable properties in these agents are biodegradability, low cost and easy of handling. There are certain biocides currently on the market as, for example, sulfate of tetrakis (hydroxymethyl) phosphonium (THPS), ethylene diamine disuccinate (EDDS), among others. Although biocides are widely used, they are not always efficient and may be toxic and also may cause serious environmental impacts due to the high doses applied in addition to the high cost of implementation. Thus, it is necessary to seek new biocides capable to remove microorganisms contaminants, such as sulfate-reducing bacteria (BRS), which are primarily responsible for MIC, and other organizations that assist in this process. The aim of this work is to evaluate new biocides against microbial multiplication. Biocides tested were made from castor beans (5 extracts: A, B, C, D, E). In the initial stage of this work biocides were tested against isolated anaerobic bacteria from produced water from oil Field in Sergipe. This test was conducted with the antibiogram technique with serial dilutions of the biocide on filter paper disk, with glutaraldehyde as positive control and distilled water as negative control. The bacteria used were: *Clostridium sporogenes*, *Clostridium bifermentans* and *Thalassospira* spp. The tests were performed in BHI-Agar. All biocides tested inhibited the growth of these bacteria with different efficacy.

Key words: antibiogram, biocides, biocorrosion, biofilm

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