

ESSENTIAL OILS FROM WHITE AND RED SACACA (*Croton cajupara* Benth) AND SACAQUINHA (*Croton sacaquinha*) WITH ANTIMICROBIAL ACTIVITIES AGAINST SULFATE-REDUCING BACTERIA (SRB)

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The sulfate-reducing bacteria (SRB) represent a problem for the oil industry. The presence of SRB in pipelines, reservoirs and oil wells is associated with the formation of biofilms, biocorrosion and acidification (production of H₂S) and may result in the closing of wells. Strategies for the control of SRB employ the use of high concentrations of biocides which may induce bacterial resistance and, indirectly, lead to environmental impacts. Different essential oils (EO) produced by plants show the ability to inhibit the growth of different microorganisms, being a possible alternative for the control of SRB. Therefore, the aim of this study was to evaluate the antimicrobial activity of the EO from white and red sacaca (*Croton cajupara* Benth) and EO from sacaquinha (*Croton sacaquinha*) against the strain NCIMB 13491 of *Desulfovibrio alaskensis*. To evaluate the antimicrobial activity, a volume of 100 µL of each crude EO was tested in 9 mL of Postgate C medium inoculated with 1 mL of the SRB strain NCIMB 13491. The EO from sacaquinha showed complete growth inhibition of the NCIMB 13491 strain when compared to the control without the EO. The introduction of EO from red and white sacaca in Postgate C inoculated with the SRB strain resulted in a lower turbidity of the culture medium compared to the control. An amount of 1 mL was re-inoculated in a new Postgate C without the addition of bioproducts. No growth was observed considering the addition of EO from sacaquinha. However, the samplings from white and red EO sacaca resulted in the SRB growth. Furthermore, the EO showed inhibition white sacaca opposite NCIMB 13491 strain when this bioproduct was diluted in the ratio 1:4 in Postgate E medium. Thus, the MIC for the white sacaca EO was 1,250 g/mL. In the future, these findings may help to control these bacteria in the oil industry.

Keywords: Essential oils, antimicrobial activity, sulfate-reducing bacteria (SRB)

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