

Removal rate evaluation ammonia bacterial isolates from sewage treatment station associated with petroleum in different enrichment media

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Petroleum extraction in marine platforms generates a large amount of saline effluent contaminated with toxic compounds and / or recalcitrant. Large volume of water is spent in the extraction process, leading industries some wondering the possibility of reusing water. In accordance with the environmental standards, the effluent before it is reused or discarded, must be treated. Among the forms of treatment, the biological has been the most used by the industry, due to its low cost and good pollutant removal efficiency. The biological removal of ammonia can be made by autotrophic microorganisms which oxidize the ammonia nitrogen to nitrate through nitrite under aerobic conditions, or heterotrophic microorganisms that perform the aerobic heterotrophic nitrification and denitrification simultaneously. In the latter case, ammonia is converted to nitrogen gas in a single microorganism. The objective of this study was to evaluate the removal rate of ammonia bacterial isolates from activated sludge and enriched way to autotrophic nitrifying and a half to heterotrophic nitrifying. 16 bacterial isolates were evaluated for nitrifying sludge from the effluent treatment plant saline, 6 of these were selected that showed a better efficiency in ammonia removal test medium containing ammonia. The 6 isolates were grown on two different culture media, one for enrichment of nitrifying autotrophs and another for enrichment of nitrifying heterotrophs. Every 24 Hours a sample aliquot was removed and analyzed by colorimetric method for assessing the rate of ammonia removal. After five days in the nitrifying heterotrophs for ammonia removal was 100% for all strains, since the autotrophic nitrifying means for removing the same period was negligible for all isolates where ammonia removal was observed only after thirty days cultivation. This result shows a difference in the removal of ammonia in the different culture media, showing greater ability of the isolates to use ammonia in the presence of a carbon source. Which leads us to conclude that different from autotrophic nitrifying, the tested isolates can remove ammonia using carbon as an energy source. Chromatographic tests will be carried out to confirm our results. Which leads us to conclude that different from autotrophic nitrifying, the tested isolates can remove ammonia using carbon as an energy source. Chromatographic tests will be carried out to confirm our results.

Palavras-chaves: heterotrophic nitrification, removal of ammonia, autotrophic microorganisms and Petroleum.

Agência Fomento: Petrobras e CNPq