

ABSTRACT

Currently, natural waters present different types of contaminants, especially dissolved salts, either by anthropogenic activities or by natural processes, which alter their natural conditions. These ions can cause hardness, such as calcium and magnesium, sulfates, among others. Therefore, it is necessary to search for alternative methods that are easy to apply, economical, and environmentally friendly for removing these ions since the processes used for their elimination have high costs. One option is the ionic exchange adsorption process using clay soils, which promotes the retention of cations and anions dissolved in the water due to their amphoteric nature. For this purpose, adsorption beds of two sizes 5 and 15 mm were prepared. The beds were used to perform experiments in fixed-bed columns where the treatment of natural water samples from UNACH wells was carried out. The adsorbent substrates were evaluated in natural and activated form with standard solutions of NaOH at 0.005N and 0.01 N NaOH standard solutions. The results indicate that the materials continuously retain the calcium and sulfate ions present in the water with different yields, obtaining greater effectiveness when using activated beds at higher concentrations. These materials can be an alternative in the removal of dissolved salts from natural water.

Key words: Natural water, hardness, sulfates, adsorption beds.

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