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Microbial quality of wastewater in a system of stabilization lagoons to be employed in irrigation

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Abstract

The use of the residual waters in agriculture is an alternative in facing the challenge of increasing agricultural production and in controlling environmental contamination, but it can constitute a sanitary problem due to the numerous pathogens that may be present in these waters. For many years, the fecal coliforms now denominated termotolerants (CTT), have been employed as indicators of contamination but today, it is well-known that there is little relation between the presence of these coliforms and the incidence of pathogens. For this reason, in this study was undertaken in the stabilization lagoons at the University of Zulia. Besides the traditional indicators, the following microorganisms: enterobacterias (EB), fecal estreptococcus (EF), enterococcus (EC), heterótrofos (Het), coliphages of *E. coli* C and fungi were determined, following standard techniques, for the purpose of evaluating the operation of the system and its use for agricultural purposes. In the final effluent, the geometric averages were: CT $1,2x10^4$ MPN/100 ml, CTT $8,0x10^3$ MPN/100 ml, EF $8,1x10^1$ MPN/100 ml, EC $5,3x10^1$ MPN/100 ml, Het $1,1x10^4$ CFU/ml, *E. coli* C $5,7x10^2$ PFU/ml and fungi $6,2x10^2$ CFU/ml. It was demonstrated that despite high removal levels, 90% of the samples did not fulfill the requirement established by the OMS/OPS for residual waters to be used for irrigation purposes.

Key words: Stabilization, lagoons, fungus, removal, viruses, bacteria, water.

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