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Comparison of Decontamination Methods for the Isolation of Non-Tuberculous Mycobacteria from Water Samples

Abstract

Background: Non-tuberculous mycobacteria (NTM) or environmental mycobacteria are diverse species that are scattered in the environment and water is one of their important reservoirs. Several factors are involved in the colonization of mycobacteria in water. Non-tuberculous mycobacteria cause a variety of diseases, especially pulmonary diseases, by being transmitted to humans. Isolation of these bacteria from environmental sources is very complicated due to the presence of other microbes. Although NTMs are resistant to some disinfectants and can be isolated from other microbes in the presence of some disinfectants, the important point here is that all mycobacteria aren't equally sensitive or resistant to disinfectants.

Methods: Various methods have been used by researchers to isolate NTM, but a standard method for this work has not been reported as yet. This study is a systematic review based on valid internal medical databases including SID, Magiran, and foreign databases such as PubMed and Scopus.

Conclusion: The search was performed with the keywords NTM, Environmental mycobacteria, and MOTT. All valid and related articles were included in the study, and effective factors in the isolation of NTM from water samples were investigated. The selection of standard medium, the optimum pH, incubation at 30 degrees Celsius, use of CPC instead of other disinfectants, use of filtration instead of centrifuge, and incubation period were effective factors in isolating NTM from water samples.

Keywords: Decontamination methods, Non-tuberculous mycobacteria, Water