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Inhibition of Pathogenic Biofilm Formation on Re-usable Medical Devices Using Ethylenediaminetetraacetate (EDTA)

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Abstract

Formation of biofilms on medical devices is a critical cause of hospital-acquired infection leading to patient morbidity and mortality as well as increased health care costs. Prevention of biofilm formation on re-usable medical devices would extend their useful life and reduce the risk of cross-infection in patients.

EDTA is a nontoxic anthropogenic chelating agent widely used for its ability to form stable, water-soluble complexes with metals. EDTA negatively affects the formation of biofilms, however, the mechanism, critical concentration, and kinetics of this process are unclear. In this work, the suitability of EDTA as a biofilm preventative for re-usable medical devices is evaluated. Project goals include development of a protocol for EDTA's use as well as an evaluation of the potential for incorporation of EDTA into re-usable devices.