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Study of role of aerobic bacteria *Bacillus subtilis* and *Pseudomonas aeruginosa* on biocorrosion behaviour of stainless steel 304 (SS304)

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This research work has studied the role of two bacteria namley; *Bacillus subtilis* strain S1X and *Pseudomonas aeruginosa* strain ZK in the corrosion behavior of SS304 in minimal salt medium with 1.5% NaCl as a corrosive agent. Electrochemical techniques including Tafel polarization and electrochemical impedance spectroscopy and surface analytical techniques including atomic force microscopy, scanning electron microscopy-energy dispersive spectrum analysis and Fourier transform infrared spectroscopy showed that both bacteria developed a protective layer in the form of biofilm on the surface of SS304 and thus inhibited the corroiosn of underlying surface of alloy. The decrease in pH values for bacterial inoculated systems with increasing incubation time showed the production of some acidic metabolites by bacterial isolates.

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