

Oxidative stress generated at nickel oxide nanoparticle interface results in bacterial membrane damage leading to bacterial cell death

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Effects of nickel ions on growth of *B. subtilis* and *E. coli*

B. subtilis and *E. coli* mother cultures were prepared by taking a loop full of bacteria from previously prepared slant culture followed by inoculation into the nutrient broth. The cultures were kept overnight incubation at 37 °C and 150 rpm orbital shaking. 5 mg/mL nickel chloride stock solution was prepared by dissolving an appropriate amount of nickel chloride in deionised water. Different reaction mixtures of 10 mL were prepared in test tubes, taking 1 mL of mother culture and different nickel chloride concentrations (0, 50, 100, 250, 500, 1000, 2000, 2500. µg/mL), and the final volume was adjusted using the nutrient broth. Optical density at 600 nm was measured at 16 hours of incubation. The Fig. S1 demonstrated that with increasing nickel ions the growth of both bacteria increases. The results were in accordance with the results described by Mulrooney et al [1]. The nickel is an essential nutrient for some microorganisms which is taken up by ATP-binding cassette-type transport systems or nickel-specific permeases [1].

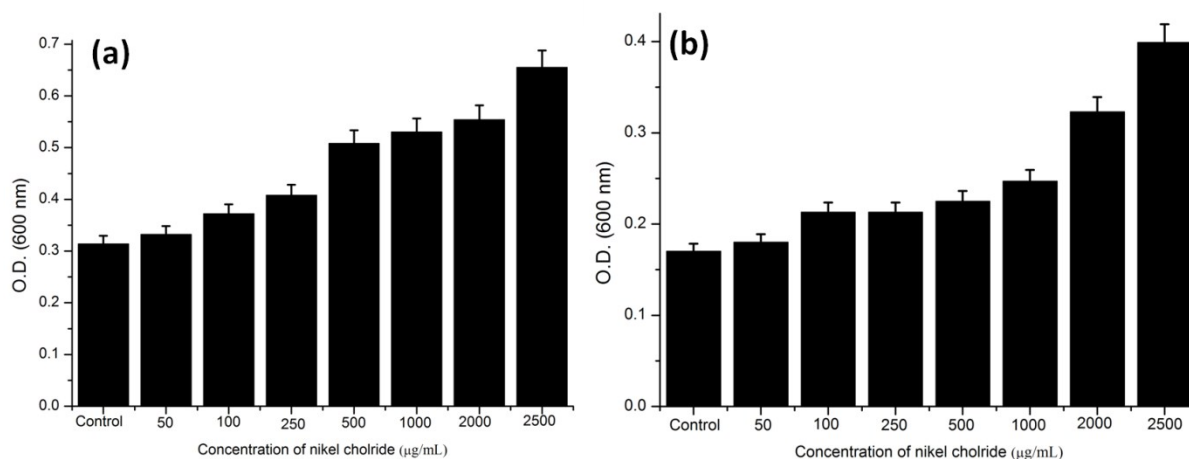


Figure S1: Effect of nickel ions on growth of *B. subtilis* (a) and *E. coli* (b)

Reference

[1]. Mulrooney, S. B. and Hausinger, R. P., *FEMS microbiology reviews*, 2003, **27**, 239.