Electronic Supplementary Material (ESI) for RSC Advances.

Electro-deposition of bactericidal and corrosion resistant hydroxyapatite nanoslabs

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Methodology:

Synthesis of hydroxyapatite nanoslabs:

Briefly, the process involved mixing of dipotassium phosphate and cetyltrimethylammonium bromide (CTAB) together in 1:1. Both the components were dissolved in 50 mL of de-ionized water and adjusted the pH of solution to 12 using sodium hydroxide (1 M) solution. Since CTAB doesn't dissolve easily, the solution containing phosphate precursor and CTAB was sonicated in water bath for 30 minutes. Thereafter, the solution was kept on stirring for about one hour at room temperature. In separate reaction, cadmium chloride (4.0 g) was dissolved in 50 mL of deionized water. This cadmium chloride solution was added to phosphate-CTAB solution dropwise, and the solution thus obtained was a milky suspension. This solution was refluxed for 24 hr. Thereafter the precipitates were centrifuged, followed by repeated washing with deionized water to remove contaminants if any. The precipitated was oven dried for 24 hr at 70 °C. Finally, the collected powder was calcinated in furnace at 600 ˚C temperature for 6 h.

BET analysis of HA nanoslabs:

BET analysis was used to find the porosity of hydroxyapatite nanoslabs. For this, the nitrogen (N_2) adsorption-desorption isotherms were collected in a Quantachrome Autosorb-1 (Equipment model name) gas adsorption analyzer at 77K after degassing the samples at 150 ºC for 15 hours.