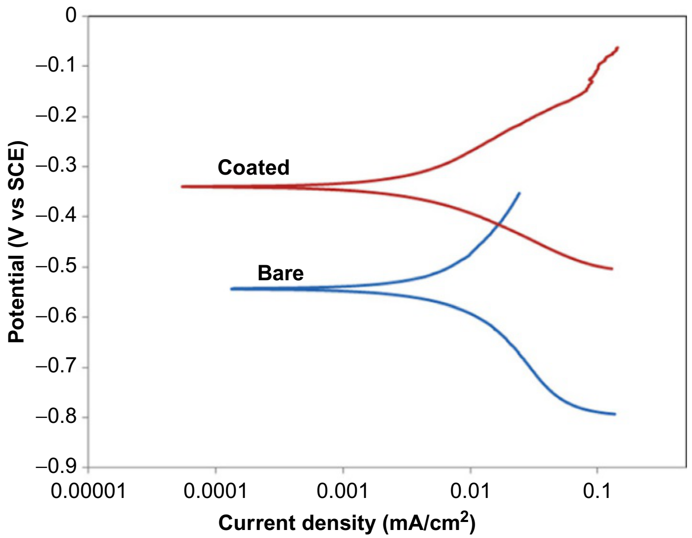

FIG. 1.6 Polarization plots for samples tested in artificial saliva solution for bare and coated stainless steel. *(Reproduced with permission from Mehdipour, M., Afshar, A., 2012. A study of the electrophoretic deposition of bioactive glass-chitosan composite coating. Ceram. Int. 38, 471–476 of Elsevier.)*

the anode. Biological studies showed hydroxyapatite formation after 2 weeks of SBF immersion. Therefore, poly(2-oxazoline)s are suitable biopolymers for biomedical applications, particularly bone regeneration and cell scaffolds. Natural polymers, such as cellulose nanocrystals, have attracted interest because of their abundance, low density, nanoscale dimensions, high aspect ratio, and excellent mechanical properties. EPD coatings using cellulose crystals can be functionalized in order to obtain different properties for biomedical applications. Chen et al. (2014a) developed BG-cellulose nanocrystal composite coatings and studied their bioactivity via immersion in SBF from 0.5 to 14 days. The coatings showed BG particles individually covered and interconnected by a polymer layer of cellulose, generating a composite structure with macropores between the BG particles. The incubation of the coatings in SBF showed a fast generation of hydroxyapatite (HA) (0.5 days) and a complete densification of the mineral layer after 14 days. Potentiodynamic curves demonstrated the corrosion resistance of the coatings after different times of immersion in SBF. The improvement of the corrosion resistance was attributed to the densification process of the coating, which was observed to occur with increasing time of immersion in SBF.

Chen et al. (2014b) also reported the *co*-deposition of polyvinyl alcohol (PVA) reinforced alginate-BG composite coatings. PVA as a synthetic hydrophilic polymer presents acceptable mechanical properties, low toxicity, and low cost. The most attractive characteristic of this polymer is the capability to