**Effect of Nitric acid treatment on biodegradation of Mg-Ca alloys for orthopedic applications**

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**ABSTRACT**

Magnesium alloys are very much prone to corrosion which is undesirable in utilizing them for medical implant applications. Surface modifications to form conversion coating which isolates the bulk material from the surrounding environment is an effective method to control the degradation rate. Nitric acid treatment is one such cost-effective treatment technique for controlling degradation. Mg-Ca alloy surface was modified by Nitric acid treatment to tailor the degradation in the physiological environment. Nitric acid treatment was done for predetermined durations such as 60s, 90s and 120s hours. The degradation characteristics were studied by conducting electrochemical tests on treated and untreated samples. The treated samples showed lower degradation rates compared to untreated samples. This reduction in the degradation rate is attributed to the formation of stable Mg(OH)2 layer during the treatment.

*Keywords:* Mg alloy, biodegradation, protective coating, nitric acid treatment