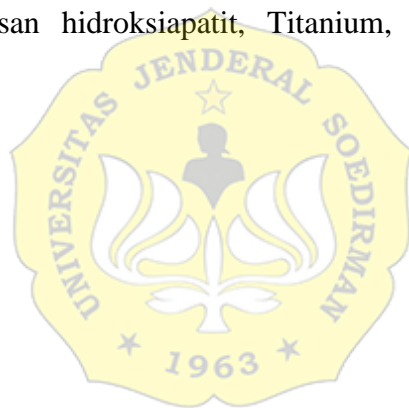


## ABSTRAK

Pelapisan hidroksiapatit (HAp) banyak dilakukan guna meningkatkan bioaktifitas dari implan tulang berbasis logam. Penelitian ini bertujuan untuk mengetahui peran dari dimetilformamida untuk membuat suspensi hidroksiapatit batu gamping kalsinasi yang stabil untuk digunakan sebagai larutan yang akan dilapiskan menggunakan metode *electrophoretic deposition*. Logam Ti (commercially pure titanium) dipreparasi dan digunakan sebagai substrat. Medium EPD dibuat dengan melarutkan DMF dalam etanol dengan volume DMF berturut-turut 0, 5, 10, dan 15%. Setelah deposisi, spesimen diberi perlakuan *post-sintering* pada 800 °C selama 120 menit dengan aliran gas argon. Morfologi dan ketebalan deposit HAp dikarakterisasi menggunakan SEM dan DOM. Identifikasi fasa serta gugus fungsional dikarakterisasi menggunakan XRD dan FTIR. Morfologi terbaik ditunjukkan oleh sampel 15% DMF dengan morfologi rapat dan beralur.

**Kata kunci:** Pelapisan hidroksiapatit, Titanium, *Electrophoretic deposition*, Dimetilformamida



## ABSTRACT

*Hydroxyapatite (HAp) coating is often applied to improve the bioactivity of metallic orthopaedic implant. This work had exercised the role of dimethylformamide (DMF) to form a stable suspension with calcined limestone-based HAp as a solution used in electrophoretic deposition. Commercially pure titanium samples were prepared to achieve the desired surface finish before subjected to electrochemical setup for deposition purposes. The mixture of the solution were varied by the volume of DMF that was fully dissolved in the ethanol precursors: 0, 5, 10, and 15% successively. After deposition, the specimens were heated at 800 °C for 120 minutes in an argon atmosphere. The morphology and the thickness of the deposited HAp on the surface of the titanium were observed using Scanning Electron Microscope (SEM) and Digital Optical Microscope (DOM). Phase identification and chemical structure of the deposited HAp were observed by X-ray Diffractometry (XRD) and Fourier Transform Infrared Spectroscopy (FTIR). The result showed a very notable improvement in the 15% DMF sample with unique grooved surface after heat treatment.*

**Keywords:** *Hydroxyapatite coating, Titanium, Electrophoretic deposition, Dimethylformamide*

