

Abstract

The current report states the author's experience as an intern at Badan Riset Inovasi dan Nasional (BRIN), under the department of Pusat Riset Material Maju (PRMM). The goal of this internship was to create a systematic review that discusses the cytotoxic effects of hydroxyapatite cosubstituted with zinc (Zn) and strontium (Sr) on osteoblastic cell lines, with the goal of possibly using this material for bone grafting. The search of articles was conducted through PubMed, ResearchGate, and Wiley Online Library, revealing 118 articles. Out of 118 articles found, only 2 articles met the inclusion criteria and were thus eligible for analysis. These articles were assessed and showed that Zn-Sr cosubstituted hydroxyapatite does not show any cytotoxic activity towards osteoblastic cell lines, and in general shows a higher cell viability compared to simply hydroxyapatite. However, due to the limited number of studies done, further research is required to ensure that Zn-Sr hydroxyapatite is indeed a suitable bone graft material.

Keywords: hydroxyapatite, cytotoxicity, zinc, strontium, cosubstituted, codoped