

Biocompatibility of hydroxyapatite derived from whitemouth croaker (*Micropogonias furnieri*)

Daniel Ribeiro¹, Hirochi Yamamura¹, Victor Silva¹, Valter Ussui², Dolores Lazar², Veridiana Rosso¹ & Ana Claudia Renno¹

Author affiliations

¹Federal University of Sao Paulo, Santos, Sao Paulo, Brazil; ²Nuclear and Energy Research Institute, IPEN, Sao Paulo, Brazil.

The aim of this study was to investigate the biocompatibility of hydroxyapatite (HAP) powder from whitemouth croaker fish (*Micropogonias furnieri*). For this purpose, fragments from HAP with 0.5 cm² were inserted in the subcutaneous tissue of animals. After 7, 15, and 30 days, histopathological analysis was performed. The results showed that it was possible to detect tissue reactions closely related to cytotoxicity in a time-exposure manner. At day 7, moderate to intense inflammatory process as a result of interstitial edema, a good deal of mononuclear inflammatory cells (lymphocytes), congested vessels and the presence of biomaterial was detected. Furthermore, the histological sections were characterized for the presence of smooth collagen fibers and few fibroblasts. At day 14, a regression of the inflammation was observed, in most sections. At 30 days, few fragments of HAP surrounded by giant multinucleated cells were also observed in this period. A well-organized connective tissue was detected, with tissue proliferation into the biomaterial in some of the cases. Taken together, our results demonstrated that HAP from whitemouth croaker exhibits a great potential for using as biomaterial towards highly valuable commercial product.