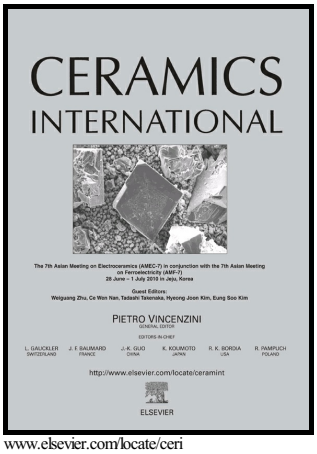


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# In Vitro Cytotoxicity of Monticellite Based Bioactive Ceramic Powder Synthesized from Boron Derivative Waste

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## Abstract

The cytotoxicity of monticellite based bioactive ceramic powder, which was synthesized from boron derivative waste has been determined by in vitro assays of MTT, NRU, and JC-1 staining. The toxicity of powder on different mammalian cell lines (3T3-L1, HUVEC, CRL-2120) was evaluated at the concentrations of 10, 100, 200, 400 and 800 µg/mL to justify its potential for biomedical applications. The obtained results showed that monticellite based bioactive ceramic powder possesses not only bioactive feature but also biocompatible characteristic at the concentration range of 10-200 µg/mL. Hence, monticellite based bioactive ceramics have high potential as a bone graft substitute for bone void filling and coating applications.

**Keywords:** Monticellite ($CaMgSiO_4$), Bioactive ceramics, Cytotoxicity, Powder synthesis, Boron derivative waste