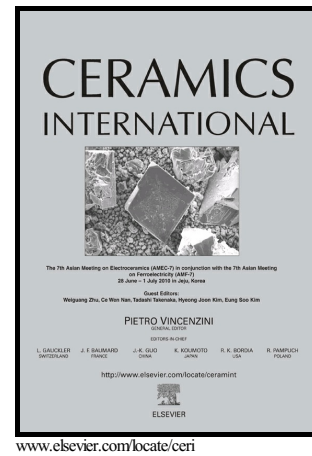


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# **Silver-doped pseudowollastonite synthesized from rice husk ash: antimicrobial evaluation, bioactivity and cytotoxic effects on human mesenchymal stem cells**

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## Abstract

Research into biomaterials has grown rapidly in recent years due to the clinical need for organ and tissue replacement and regeneration. One of the most serious complications in orthopaedic implants is surgical site infection. Therefore, many attempts have been made to develop biocompatible materials with antibacterial properties. In this study, a newly-synthesised pseudowollastonite (PSW), synthesized from rice husk ash and a limestone precursor, was incorporated with different concentrations of silver (Ag) and sintered to enhance the antimicrobial activity and biocompatibility of pseudowollastonite-silver (PSW/Ag) biocomposites. The antibacterial test revealed that PSW, with the addition of silver up to 5 wt%, was able to inhibit the growth and reproduction of bacteria. The bioactivity test for the PSW/5 wt% Ag biocomposite also displayed the existence of an apatite peak in the X-ray diffraction pattern. The apatite microstructure was observed with FESEM-EDX after seven days of immersion in simulated

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